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Edited by H. G. S. Wallace

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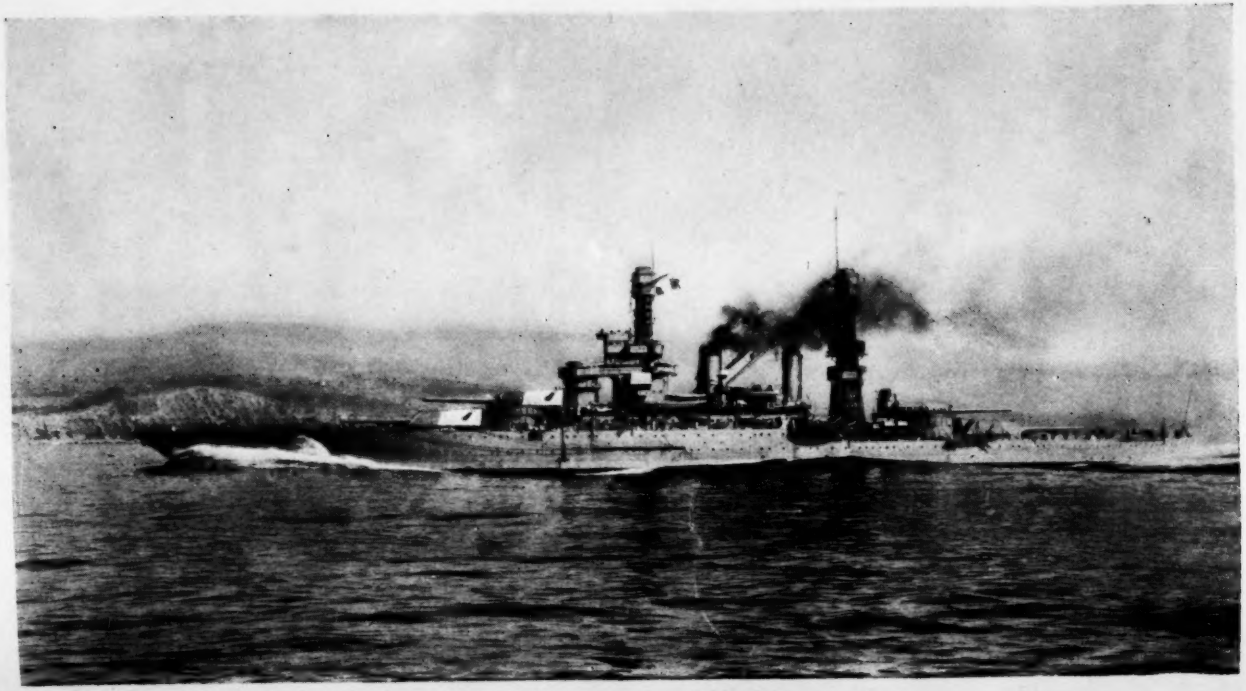

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MAINTENANCE OF THE TREATY NAVY[1]

By Assistant Secretary Theodore Roosevelt

In the final analysis, civilization is based on communication. The advance of man has been coincident with man's contact with man. Thought is stimulated by the interchange of ideas and commodities. The importance of communication to a country is proved by the nations in our own time and by countless illustrations in history. The backward communities are those that have but little connection with the world at large. The most savage and barbarous tribes are those that are most isolated and that have been isolated through the ages, and it is on remote islands and in inaccessible jungles that the most primitive peoples are now found. In general, and proving the same rule, the reverse of this holds true. For the great and civilized nations of today and of the past are those whose system of communication is most perfect.

Perhaps the greatest single civilized governmental unit of early days was the Roman Empire. By the same token, it was the Roman Empire which had the best developed system for the transmission of men, ideas and commodities. The Roman roads, for example, are proverbial for their frequency and excellence. On them and over them through the generations swept the tide of traffic of the Roman Empire. Indeed, to the present day these same roads are in many instances still serving their purpose. During the last war, when I was in France, I marched over them

[1] Speech delivered before the National Academy of Political and Social Science, Philadelphia, Pa., 20 January, 1923.

and saw guarding them the remains of the army camps of those days, by which they were protected. The Roman system of communication was perhaps, never equalled, let alone excelled, until within the last hundred fifty years. Their galleys were the fastest, their roads were the shortest and best, their post system, their helio system, remained until comparatively recently, models of a lost efficiency. Through the length and breadth of their vast empire protection was afforded to commerce on land and on sea. To these excellent and well-protected lines of communication, Rome owed in the main part her greatness and her cohesion.

Furthermore, the human race does not stand still. It either advances or slips back. "Where there is no vision, the people perish," and it is through new contacts with others that we reach out for new ideas and new viewpoints. In all of the most brilliant ages of man, thought has been stimulated and fertilized by intercommunication. To it we owe our nation, for it was man's restless progress over uncharted seas and through untamed wildernesses that created our country and developed the civilization of the western hemisphere.

In the past, the two great mediums of communication by which our civilization was built were the land and the sea. Our Navy, indeed all navies, are indissolubly linked with the latter, because for communication by water, protection is necessary. Rights on the sea are as important as the right to travel unmolested on the railroad or down the turnpike. No great country can afford to have them jeopardized, for every great country depends on them not only for advancement, but even for her ability to retain her present level. It is the navies of the big civilized powers that have kept open the lanes of traffic in the world. They have been kept open as against pirates. They have been kept open as against other overbearing nations. History furnishes many instances of this. The Roman records contain many examples. Rome was constantly harrassed by pirates until, under the able administration of Augustus, she swept them from the Mediterranean. The underlying cause of the greatest and most significant wars that Rome met with in her rise to power—those with Carthage—was the domination of the Mediterranean Sea.

English history parallels theirs, and our own annals furnish many similar instances. During the brief one hundred fifty years

of our existence we have executed many operations against pirates. In the early part of the last century, at numerous times our fleet was employed in sweeping the pirates from the Gulf of Mexico and the surrounding waters. Our ships sailed under Decatur to combat piracy in the Mediterranean. Indeed, at this very time, we have vessels in Asiatic waters putting down piracy and protecting our nationals and commodities. Furthermore, two of our wars at least, have been in a measure brought on by the question of our rights on the sea. The War of 1812 and the War with Germany were intertwined in their origin with the rights of our sea-borne traffic and the rights of our sea-faring people.

The merchant marine needs the protection of the Navy; the Navy in time of war needs the supplementary aid of the merchant marine, and the country in peace or war needs both. The Navy is a necessary protector of that all-important adjunct of our great civilization—our communication with the other countries of the world.

In addition, our Navy is our first line of defense. It is the shield which prevents the enemy from striking at our vitals. We are not a militaristic nation. We do not maintain a large army. We depend upon our civilians for our military forces. Our ideal is to "show how civilians can smite with the sword." When war breaks, as it has in the past and as it will again in the future despite all we can do, we have much real work to do before our military organization is in proper shape. It is the Navy that holds the enemy at bay while this preparation is being made. Furthermore when victory is attained, it must be through attack, and to attack it is necessary for us to hold the sea lanes. It is the Navy, therefore, that makes this attack possible. Navies primarily are the safe-guard and defense of those countries who do not desire wars of aggression, but who desire, as all right-thinking countries should, to maintain themselves in a position where they can adequately guard the rights of their citizenship.

The Navy also is the right arm of the State Department. It is through the Navy, in large measure, that the State Department visualizes and translates into action its policies. At this time our naval vessels are stationed from the Mediterranean to Asiatic waters. At this time we have ships cruising near Central and

South America. Our vessels are spread over the seven seas. They are the tangible evidences of the power of the United States. Behind all the pronouncements of our State Department rests the power of our Navy. It is the Navy that turns these pronouncements from simply unsupported statements into matters that must be given the gravest consideration by all nations. Our policies, in truth, are based on the Navy. Indeed, the Navy is the cornerstone on which rest the Monroe Doctrine and the policy of the "open door."

Every day, also, in unconsidered and unrecorded ways, the Navy is working for the good of the country. It is helping us to maintain peace for the people by the respect it inspires. It is spreading our influence over the four quarters of the globe, for trade follows the flag. When one of our vessels steams into a foreign port, the stars and stripes floating over her, she is the outward and visible sign of the spirit and soul of the United States.

Though land and water have been the great mediums of communication in the past and are still at this time, another is now opening up—the air. The past twenty years have turned many of the romances of the past into sober facts. Icarus' tragic death has been and is paralleled by our daring young men who, as pioneers, are developing this new empire. Though air communication is still in its infancy, enough has been done to clearly prove its importance. In this respect too, the Navy's work is important, for naval aeronautics are an integral part of our Navy and we are pushing the development as energetically as we can.

Our Navy at present can be divided roughly into two heads—the shore establishment, and the fleet afloat. The shore establishment has as its mission the service of the fleet afloat. It is composed mainly of yards where the ships are repaired by skilled civilian workmen, many of whom have been in the government service all of their lives. These yards are situated at strategic points on our coasts and in certain of our outlying possessions. Without them, the Navy would be helpless; and radio stations whereby our ships the world over are kept in close contact with the government at Washington. In addition we have manufacturing plants such as our Aircraft Factory at Philadelphia; training depots for the new recruits; supply bases, and other similar developments—all necessary to the maintenance of the compli-

cated and diverse machine of a modern navy. In these shore activities, approximately speaking, fifty thousand civilians are employed.

The fleet afloat is, of course, the main objective and the one to which all efforts are primarily bent. The fleet afloat is now a single fleet under a single admiral. It can be divided roughly into five groups. The first of these is the battleships. They correspond to the infantry in the army. From time immemorial they have formed the backbone of our naval defense. It is the great guns of the capital ships that hammer out victory when the fate of the nation hangs in the balance. Important and vital as the other elements are, they are, in the final analysis, but supplemental arms.

The next group is the auxiliary surface craft. In this group are the light cruisers, the cavalry of the Navy. In peace or in war, they are the far cruising rapid units. It also contains the destroyers. Their main weapon is the torpedo and they screen the great ships in action.

The third group is composed of the submarines, which embody many and diverse functions. They are a constant threat to all fighting units. They can be used for breaking an attack formation. Furthermore, they can scout unsupported by other units and are of great value for laying mines where surface craft dare not penetrate.

The fourth division, aviation, is new and only partially developed, but it will assume an increasingly important rôle as the years go by, and experience and invention eliminate the problems that limit it at present. There are three missions with which naval aviation is charged. It co-operates with the army in coast defense; it operates to a limited extent from the decks of the battleships; and it functions as an auxiliary arm from the aircraft carriers. As battle ranges have now increased to over thirty thousand yards, the use of airplanes in action to observe and report the fall of projectiles has become essential to accuracy of fire against an enemy beyond the horizon. We have at this time two vessels partly constructed which will be aircraft carriers. Their length is greater than that of any other ship in the Navy. Each one of them will carry from seventy to eighty planes, depending upon the type and size of planes. They will accom-

pany the fleet in action. From their decks will rise scouting planes to be used as the eyes of the Admiral, torpedo and bombing planes for attack and fighting planes to repel an enemy aerial attack.

The last important group is the non-combatant auxiliary craft. It is difficult for the average individual to realize just how vessels of this sort are necessary, but a modern battle fleet is helpless without them. Some are specialized and must be a part of the regular Navy. These number such units as hospital ships, supply ships, repair ships and transports. Others are more general in character, and whereas it is necessary to have some of them at all times in commission and on hand, may be supplemented by the merchant marine in time of need. These number such units as oilers, colliers and cargo vessels.

Perhaps the greatest single achievement during the past year, from a naval standpoint, was the limitation of armament treaty. The heart of this treaty is the naval ratio established between the great naval powers, namely, for the United States and Great Britain, 5, Japan, 3, and France and Italy, 1¾ each. Concretely, this allows the United States a Navy equal to that of Great Britain and forty per cent greater than that of the next naval power, Japan.

This treaty gives us, for the first time in our history, a definite naval policy. All agree that we should live up to these terms. Therefore, our mission is simple—for though it does not limit all classes of craft, as it was impossible to reach an agreement on certain of the auxiliary types, nevertheless the great powers have taken the spirit embodied therein as a guide, and are handling themselves accordingly. Not only does this treaty stop competition, but in addition, it gives us a definite proposition on which to appear before the American public. Furthermore naval plans inaugurated in conformity with the spirit and letter of the treaty will not, in the future, arouse the suspicions among the countries of the world of ulterior motives which fomented so many of the international troubles of the past.

Our mission in the coming year is to create a balanced and adequate treaty Navy. This country will at all times hold strictly to, not only the letter, but the spirit of the agreement. At no time will we undertake building plans in the unrestricted classes

which could reasonably be said to reopen naval competition. Our endeavor will simply be to put ourselves on a parity with the ratio allowed us.

At this time we have not a treaty Navy. We lack certain essential elements. One of these elements is mine-laying submarines. We have no mine-laying submarines in the United States Navy, and yet this type was proved by the war to be most effective and necessary. War statistics indicate that a very large percentage of the destruction done by submarines can be credited to this type of vessel. Mine-laying is an important part of modern naval warfare. The submarine can lay mines where other craft cannot, because the submarine can operate unobserved where surface craft would infallibly be detected and destroyed. We also have but three scout submarines, the *V-1*, *2* and *3*, which are under construction now at the Portsmouth Navy Yard. Even when completed, these submarines will not be of the latest design, and though useful in their way, cannot be compared to units laid down in more recent years. The scout submarine, like the mine-laying submarine, has an important mission which it, and it alone, can accomplish.

For all-around utility, in both peace and war, there is no craft more valuable than the scout cruiser. In this branch of naval architecture the United States is very deficient. We have no modern light cruisers with the exception of the ten which are now building. These cruisers have a displacement of 7,500 tons. The treaty allows a displacement of 10,000 tons for light cruisers. The other chief naval powers are greatly superior to us in their light cruisers, both in total tonnage and in types constructed or under construction.

Before the limitation of armament treaty, the United States, in capital ships, was following a policy of constructing new and additional units, rather than remodeling older units. Other countries had been remodeling the units they had on hand. The treaty, by definitely limiting the number of capital ships, has eliminated the policy formerly pursued by this country. The modernization work in progress in other countries previous to and since the formulation of the treaty has placed the United States in an inferior position insofar as capital ships are concerned. In order to bring ourselves to the parity allowed us, we must undertake a

modernization program. This will involve such things as increased elevation for the guns on certain of the vessels, and anti-aircraft and submarine protection of various types.

To summarize, before we can permit ourselves to state that we are maintaining the treaty Navy, we must build certain mine-laying submarines, certain scout submarines, certain scout cruisers, and modernize along various lines, a portion of our capital ships. As I said before, all nations concerned are abiding by the treaty. The United States, also, in following out the suggestions made, will in no way violate either the spirit or the letter of the treaty. We will not attempt, in the program I have outlined above, to exceed our allotted strength. We believe the limitation of armament treaty to be a great work, not only for our country, but for the world. This treaty was made possible by the fact that we had a powerful Navy. There may be other treaties in the future. If we wish to be considered when such a time arises, we must maintain properly what is allowed us at this time. We believe that the United States stands in the world for both honor and peace. If this stand is to be effective among the nations of the world, we must maintain our treaty Navy adequately. The feeble well wisher amounts to but little in a practical world. In *Pilgrim's Progress,* we admire "Great Heart" not simply because of his fine ideals, but because he had the force to stand against the powers of evil in defense of these ideals. We want no wars. We are not an aggressive nation, but it would be idle and mendacious for me to tell you that there would be no wars. Our freedom, the safety of our families, the institutions we prize, all demand that we maintain our proper defense. I wish to see our country in the future honored and respected. There is one way and one way only that this can be attained, and that is by being strong. I wish to see peace for our country—the peace of the righteous. There is one way and one way only that this can be attained and that is by being strong. For the sake of our children and their children's children, we must build up and then properly maintain our treaty Navy.

THE NAVY[1]

By Admiral R. E. Coontz, U. S. Navy, Chief of Naval Operations

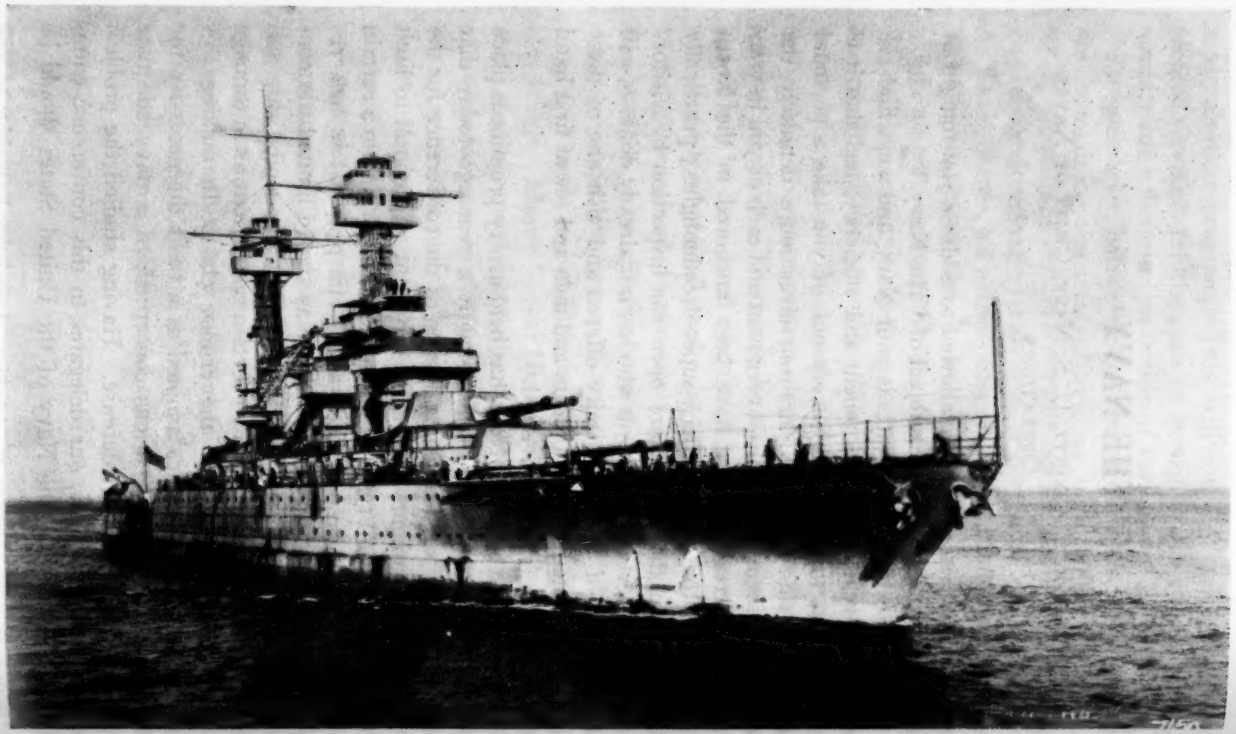
Ladies and Gentlemen:

It is a privilege for me to be allowed to address you tonight at the Marine Exposition on the subject of "The Navy."

The Navy of the United States is your Navy, and we, who have devoted our lives to its development and efficiency, feel that it is most important that each and every one of you take a personal interest in it and ascertain for yourselves more definitely the function it performs for your Government and each of you in your daily lives. Recently, there have been anchored in the North River some of the great modern super-dreadnoughts; practically every afternoon these ships are open for inspection by visitors and I hope that every one of you who has not already done so, will take advantage of the opportunity offered and visit one of these ships, get aquainted with its officers and men and see at first hand how your money is being invested.

During the past year the Navy has held a very prominent place in the public eye. It was almost exactly a year ago today that Secretary Hughes at the opening session of the conference for the limitation of armament startled the world by a proposal to limit the construction of all types of naval vessels according to a certain definite and already established ratio. His proposal in half respects was rejected; the Naval Treaty as signed limited the construction of only two types of ships, namely, the capital ship and the airplane carrier, and imposed certain restrictions as to tonnage and armament of ships of the cruiser class. In making this proposal, Secretary Hughes adopted as a basis the necessity for the maintenance, by the nations concerned, of a navy adequate for national security and defense. Having studied the problem from this point of view, our delegates to this conference enunciated the policy that the Navy of the United States should be

[1] Made over radio phone to the American Association Exposition at New York, November 9, 1922.



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second to none, equal to that of Great Britain and five-thirds times that of Japan. The reasons for the establishment of this ratio are worthy of consideration by every good citizen. The United States Navy has never been used to provoke war; on the contrary an adequate navy has been considered by all of our great statesmen as the surest guaranty of peace. The Navy is the right arm of diplomacy—the protector of our commerce—and the surest means of safeguarding our shores from aggression on the part of an enemy. Therefore, when three of the ablest statesmen in this country, non-military men, laid down as a naval policy for the United States that our Navy should be equal to the strongest and bear certain definite ratios to the navies of other powers, it is my opinion that the great majority of the thinking American public will gladly accept their opinion as the correct one and vote to support a Navy commensurate with that policy. It is of especial interest to shipping interests to see that this policy is carried out for the Navy furnishes the only means by which foreign commerce and commercial lanes may be kept open in time of war.

Let us stop to consider for a moment what is required for the maintenance of the 5-5-3 ratio. Probably many in this audience have at one time or another in their lives played the old American game known as poker; probably many of you have at one time or another held a hand which you considered a winning one, and after considerable backing of this hand have found that some other player in the game held a hand just a little bit better. Those of you who have been through this experience will probably remember that you lost a considerable portion of your stack of chips on it and got no returns whatsoever for your investment.

Let me give you another illustration along this same line: In 1902, Germany came to the realization that if she was to become a great commercial power and maintain colonies at great distance overseas from herself, it would be absolutely necessary for her to develop a large navy as a protection for these interests. Therefore, she outlined the greatest naval building program the world had ever seen and proceeded to build up her navy to a strength greater than that of any other power. Great Britain, however, paralleled Germany's program with an additional one of her own so that in 1914, at the outbreak of the war, Germany found her-

U. S. S. MARYLAND

self with a navy *almost big enough.* During the preceding twelve years she had spent hundreds of millions, literally billions of dollars, on this navy and yet at the outbreak of war it was inadequate to its task. Similarly, to the second best poker hand it was a money losing proposition—it paid no dividends on all the millions poured into it. Germany's commerce was swept off the seas, her colonies taken away, her coasts blockaded and all because her navy was only *almost big enough.*

Keeping this example before us I believe there is not a single taxpayer in the United States who would not say "keep the Navy at its treaty strength and ready for emergency at all times." This country is not justified in spending one cent on a navy which in time of need would not be sufficient unto its task. Last April there was an attempt made in the House of Representatives to cut the U. S. Navy personnel to a strength less than that of Japan and two-thirds that of Great Britain, in spite of the fact that the Naval Treaty calling for a 5-5-3 ratio had just been ratified in the Senate. Fortunately, this move was defeated. In that defeat, the country showed that while willing and anxious for limitation of armament by agreement, they were strongly opposed to any such utopian plan of limitation by example.

The maintenance of the 5-5-3 ratio is not one of tonnage alone. Just because a nation has hundreds of thousands of tons of naval vessels tied up in navy yards does not mean that her ratio is being maintained when compared to another navy of equal tonnage which is fully manned and highly trained. A new competition is being emphasized now more than ever before since tonnage of certain classes of vessels has been restricted. This competition is the competition in efficiency, and brings back to mind the old saying which is as true today as the day when made, that "Men fight, not ships."

The only ships which the United States can consider in the discussion of the 5-5-3 ratio, when compared with the active fleets of other powers, are those which are manned and ready, for in these modern days international complications arise so suddenly that there is no time for warlike preparation between the first rumblings and the outbreak of war. We should never forget what happened in 1914. If this country allows her Navy to be greatly reduced in time of peace below that of other nations partic-

ipating in the treaty the outbreak of war would establish for us a virtual blockade of our coasts. Our shores would be open to bombardment and possible invasion. Our commerce would be swept off the seas as was Germany's during the war, until such time as our naval forces could be built up sufficiently to open up commercial lanes once more. During such a period, however, it is hard to attempt to estimate the disastrous military and economic consequences to our country and its one hundred million citizens.

The development of the air forces is assisting materially in the assurance of successful defense of our coasts against fleet attack. For the successful prosecution of any war, however, and the maintenance of our foreign commerce, the well-balanced fleet, of which the capital ship is the backbone is an absolute necessity.

To the layman it is difficult to grasp the magnitude of a modern fleet. First of all in importance of course is the capital ship, which, with its heavy armor and great guns capable of sinking an enemy vessel over the horizon forms the backbone of the fleet. Next in importance comes the destroyer. This type of vessel is used to protect the battleship against submarine attack, to deliver a torpedo attack on the enemy battle line, and to convoy merchant vessels through submarine infested areas. Destroyers are also fitted to lay mines off the enemy coasts. The submarine is another most important type of naval vessel. The common opinion is that the Naval Treaty prohibited its activities in time of war but, as a matter of fact, they are invaluable for many legitimate naval purposes. They form fine scouts and mine-layers because of their ability to operate under the surface of the water. They may attack any armored vessel and capture enemy merchant vessels and in case of armed resistance they may destroy such vessels. The cruiser also is of vital importance to the fleet, and it is in this class of vessels that this country is seriously deficient. The cruisers of the fleet are its eyes; they are spread out in advance of the main body to scout offensively and defensively against the enemy and to obtain and forward to the commander-in-chief information as to the location and disposition of the enemy fleet. At the present time we have no first light cruisers; there are ten under construction, but this total is insignificant when compared to the forty-six cruisers of Great Britain and the great

number now being built by Japan. This type of vessel is also of great importance for its value as a commerce destroyer. You will all remember the havoc raised among Allied shipping by the few German light cruisers which operated for several months until finally chased down and destroyed during the World War. Our inferiority in this type of vessel, in addition to decreasing our fleet efficiency, would be very serious to our merchant marine and to our foreign commerce in event of war.

During the past few years another type of vessel has developed which is of prime importance to a fleet. This vessel is the airplane carrier. An airplane carrier is equipped to carry a great many planes of all descriptions, fighting planes, scouting planes, bombing planes, etc. It has a large flying-off deck from which the planes may rise and to which they can return for replacement of fuel and fighting equipment. At present the United States has but one experimental ship of this character, but is engaged in the conversion of two of the large battle cruisers, required to be scrapped under the Naval Treaty, to this type.

With this fleet of fighting ships must go a large number of auxiliary ships such as hospital ships, repair ships, fuel ships, supply ships, and the like. But even so, such a fleet can only be considered as one of the elements of sea power. Behind the fleet we must have adequate naval bases and an adequate merchant marine. It was Napoleon who said "an army travels on its belly." This simile is as true of a great fleet as it is of an army. A fleet operating away from its home bases requires many times its own number of vessels in the form of a merchant fleet to supply its needs. Without a merchant marine the United States Navy could not leave its own shores in time of war. Conversely, without a Navy the commercial merchant marine could not leave the shores of the United States if engaged in war with any naval power. This mutual interdependence of the Navy and Merchant Marine is very great and cannot be too strongly emphasized. Our country needs them both, and must develop them to a strength second to none.

History has furnished many examples of the fact that national strength and sea power go hand in hand. In 1588 the British Fleet defeated the great Spanish Armada and as a result Spain was forced to relinquish her hold in the Western Hemisphere.

Similarly, the defeat of France by the British Navy forced her to relinquish her holdings in Canada. Still more recently the World War has shown how futile it was for Germany to attempt to become a great colonial power without a navy equal or superior to that of any other country of the world.

The Navy is not only an agent of warfare but is also a great humanitarian agent and commercial developer in time of peace. Just recently you have all read in the papers of the burning of Smyrna and the terrible suffering in that portion of the world. How many of you at the same time noted the small press notice to the effect that twelve additional U. S. destroyers were being rushed from this country to Constantinople, swelling the total there to twenty. The Navy during this period was responsible for the saving of thousands of lives and is similarly at work in all parts of the world as a part of its everyday routine.

The Navy also throughout its entire history has been a great developer of foreign markets and of American business. How many of you know the history of the first naval appropriation ever made in this country? This was in 1794, when the Barbary Coast pirates began making serious depredations into American exports of wheat to the Mediterranean. They would seize a ship, take her into port and levy tribute according to her value. All the nations of the world paid this tribute for years until the little United States Navy was called into being, and opened the Straits of Gibraltar to free passage.

You will remember it was Admiral Perry who in 1854 entered into a commercial treaty with Japan and opened that country to our trade. Correspondingly it was an American naval officer who opened Turkey and China to trade relations with us. In Turkey recently our naval forces have rendered great assistance to our commercial people in that region with the result that our export trade to Turkey has increased from three million dollars in 1914 to more than forty-two million dollars in 1920.

The Navy maintains a patrol force of gunboats on the Yangtze River, and this Yangtze Patrol guards our interests for some 1,700 miles up the river, right into the heart of China. It costs the Navy some $3,000,000 a year to guard our interests in the Asiatic. In this connection, it might be of interest to note that our exports to China in 1920 were valued at over $145,000,000.

Naval forces are maintained throughout the Caribbean Sea for the purpose of keeping down revolutions, protecting life, and protecting our commerce. Our trade could hardly exist throughout the West Indies, but for the protection given it by our "Special Service Squadron." Our fruit trade throughout the West Indies is enormous. In 1921, we imported fruit valued at nearly $50,000,000 and a great part of this came from the countries bordering the Caribbean. The arrangements for transporting perishable fruit have been so perfected by the great American fruit companies that should a dealer in Albany want a large quantity of bananas for the market on say the first day of June, the fruit companies know they are safe in cabling to their big fruit ranches in Costa Rica that this amount can be cut on a certain date as transportation from the ranches to the market in Albany is assured due to the protection of our Special Service Squadron. The result of this whole West Indian patrol so safeguards our trade in the Caribbean that bananas in certain Central American countries can be sold on the fruit stands in New York cheaper than apples which grow in our very back yards. The sailors doing duty in this squadron have dubbed these ships the "banana boats." It costs the Navy some $3,000,000 to maintain this patrol throughout the West Indies.

The Navy gives direct returns to business interests in other ways as well. It has been the agent for developing to a very great extent the art of shipbuilding. The Navy was directly responsible for the development of steel in the construction of hulls and the discarding of the wood and wrought iron used heretofore. The Navy has been directly responsible for the rapid development of the steel industry in the past forty years. The late Andrew Carnegie once stated that the steel industry of the United States was built on Navy specifications. By this he meant that as far back as 1882 the Navy in its specifications for ships had required that the steel used be made in this country. At that time all steel was being imported but in order to meet this provision in the specifications a small steel plant was started. Since that time the demands of the Navy for quality in steel have been able to keep just a little ahead of the manufacturers' process with the result that today the United States is the leader in the world in quantity and quality of steel produced.

Did any of you ever realize that the first ship to be equipped with electric lights was a ship of the United States Navy? The first ship to be equipped with Diesel engines for its motive power was a Naval vessel. The first ships to be equipped with oil burning installations were Naval vessels. The first ships to be equipped with geared turbines were Naval vessels. The first ships to be equipped with electric drive were Naval vessels.

I am talking to you over the radio phone. Did you know that the development of the radio phone to its present stage is due primarily to the demands of the Navy? As far back as 1907 radio phones had been placed aboard ships of the Navy and their development was being insisted upon by Naval engineers. It was not, however, until our entrance into the war in 1917 that development of this instrument progressed rapidly. At this time the Navy insisted that a satisfactory type be developed and furnished to submarine chasers for intership communication while endeavoring to chase down submarines, and a very satisfactory type was developed by the Western Electric Company. Since that time the development has been very rapid and you are all familiar with the present day uses.

The Navy was the developing agent of the gyroscopic compass which is now rapidly replacing the old magnetic compass on all types of vessels.

The Navy led in the development of watertight subdivision of hulls which has made traveling by water so much safer for all.

The Navy is also developing at the present time a stabilizer or anti-rolling device so that in future years when some of you who are present take a voyage abroad, you perhaps may do so upon a ship which even in the greatest storm will hold perfectly steady and so enable you to eat three meals each day.

In addition to the above mentioned things which have been developed by the Navy for use by commercial vessels the Navy Department is every day rendering service to our commecrial interests, all of which helps to make traveling safer and commerce cheaper. The Hydrographic Office of the Navy Department not only supplies all merchant vessels with charts and publications necessary for navigation, but also maintains a service for warning all shipping of navigational dangers such as floating wrecks, icebergs, etc.

The Navy radio is handling messages every day from ships at sea as is shown by the fact that during the past year more than three and three-quarter million words were handled by the Naval Communication Service for the United States Merchant Marine. During the winter months the Naval Communication Service handles on an average thirty S. O. S. distress calls per month, or one a day. The value of this service to the American public as a whole, and to shipping interests in particular, cannot be overestimated. The Navy Radio Stations on the Great Lakes form practically the only means of communication between ship and shore.

One of the developments of the radio has been the radio compass or direction finder. The Navy has established stations equipped with this apparatus at various points along both coasts of the United States near the entrance to harbors. When a ship is approaching one of these harbors in a dense fog and is uncertain of her position all that is necessary for her now to do is to ask two or more radio compass stations for her bearing. Within a couple of minutes she can be given her bearing from these stations and told her position exactly on the chart from which point she can lay a course so as to safely approach the harbor. This system of radio compass stations has had a remarkable record during its few years of operation and has not only saved many ships from destruction but has enabled hundreds of ships to enter port in a fog, where normally they would have had to anchor and wait for clear weather, with the corresponding loss of time in their turn-around period.

The Navy Department has just established at Philadelphia a school in oil burning for civilian marine engineers, so that thoroughly qualified men will be available for our merchant vessels who will make the operation of those vessels safer and more economical.

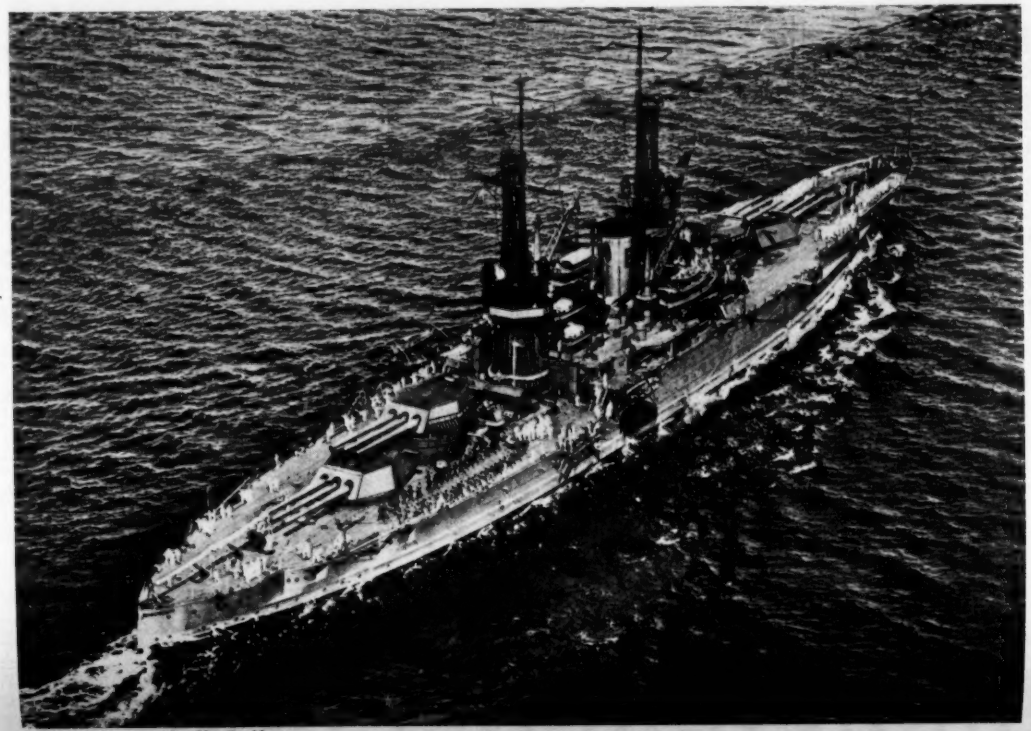
These are some of the things the Navy has done and is doing every day for the Merchant Marine. And in doing these things for the Merchant Marine, the Navy is doing them for the country and for each individual citizen, because all of us are affected by anything tending to safeguard and reduce operating expenses of our fleet of carriers for cargo in which we were interested in 1920 to the huge total of thirteen billion dollars.

More than this, however, the United States Navy, if adequately maintained, stands as positive insurance for the freedom of the seven seas to our commerce. Its annual cost of about 300 million dollars will stand out as remarkably low premium on the insurance of our thirteen billion dollar foreign commerce and our huge investment in shipping.

There are many false ideas as to what portion of one's taxes are chargeable to the Naval Appropriations. In 1920, out of every $100 paid by a citizen of the United States in all forms of taxes, only forty cents was used to support the Navy. In other words, if there had been no Navy that year, instead of $100 each citizen would have paid $99.60. And the difference in cost of maintaining a 100 per cent Treaty Navy as compared with the cost of maintaining one *"almost big enough,"* such as Germany had, would have been about five cents per capita. And can you imagine any sane business man risking the insurance on his foreign commerce for the sake of one nickel?

The Naval Appropriation Bill is soon to be presented to Congress. It plans for keeping out of commission hundreds of fighting vessels which we are allowed to maintain at full efficiency under the treaty. The Secretary of the Navy has, after full consideration of the immediate requirements for national economy, recommended the absolute minimum Navy which he considers safe for the United States to keep for this year. Any reduction from this minimum will be most dangerous. The Navy of the United States is your Navy. Get acquainted with it—study its relations to your business needs and after looking at the problem from all angles, ask your representative in Congress to keep it efficient.

It is your Navy—let us keep it a good Navy.



Official Photograph, U. S. Navy

U. S. S. Mississippi

"A JUST MAN ARMED KEEPETH HIS HOUSE IN ORDER"[1]

By Admiral Hilary P. Jones, U. S. N.

Mr. President and Gentlemen of the National Republican Club:

It seems almost superfluous before such an assemblage as this to argue for the necessity of a Navy, and yet there are so many good people otherwise intelligent in our country who say that we should set an example to the world by doing away with all armaments that we are called upon many times to justify our existence.

The subject you have given me today is National Security and Defense of Our Country. I would prefer to leave out the "defense" and sum it all up in National Security, so that the necessity for defense *per se* will never come. And I believe, that National Security for us means really proper preparedness, for with that it is hard to see how any nation in the world will ever attempt to attack us.

While Mr. Root was Secretary of the War, there was published by authority of the War Department, a book called *The Military Policy of the United States.* That book should be read by every American. In the introductory chapter, the author stated that he was aware that there existed an opinion that such a policy did not exist, but in his subsequent chapters, he clearly proved that there had existed a defined, consistent and most vicious military policy which in spite of its condemnation by every military leader of the American Army since Washington, had been followed by the nation. It has cost us immense sums of money and many lives, and has dragged out our wars most unnecessarily, but the nation has clung to it—a policy of unpreparedness.

We have had no General Upton in the Navy, but a similar book showing equally deplorable results could be written about the Navy. The foundation of our troubles is a doctrine and a fallacy —a doctrine based on self-righteousness, and a fallacy based on a selfish hope. The doctrine was expressed by President Monroe

[1] An address delivered before the National Republican Club, New York, N. Y., January 20, 1923.

in the same message in which he enunciated that other doctrine which goes by his name. It is as follows: "It is only when our rights are invaded or seriously menaced that we resent injuries or make preparations for our defense."

We have lived up to that doctrine. We have gone into every war unprepared. We have seen it develop into a doctrine that it is actually immoral to prepare for war, and have had the spectacle of a high official of the Government thanking God that we were unprepared in 1917. The fallacy is, that every war is to be the last one. After every declaration of peace, our people have apparently assumed that the peace would be eternal, that no more war could come; and now after the Great War, which some phrase has called "The War to End War," there comes from some of our citizens a large demand for the destruction of armament and suggestions that, if we only set an example, the other nations will be moved by our nobility to beat their swords into plough shares, convert their tanks into field tractors, and turn their warships into junk. The advocates of disarmament can visualize the millenium if only their doctrines are followed but cannot or will not see the actual world conditions existing today, I would ask them, "If the example of the United States is so potent, why has it not been followed in the past?" We disarmed in Jefferson's administration; we held our commerce off the seas to avoid conflict; we refused to have commercial intercourse with the belligerents; but we had war forced on us in the next administration. We allowed the Navy to deteriorate between 1815-60; after the Civil War, until the '90s, we were helpless at sea; and yet foreign nations went on building and developing. Is it that our moral influence is greater now than then? And if so, is there not food for thought in the coincidence in our increase of moral force with our increase in naval force, and cannot it be expected that there will be a decrease in our moral force should our navy be abolished?

I heard a story the other day. I do not know whether it is true or not, but it might very well be true for its point is an eternal truth. A Turkish delegate at Lausanne said to one of our observers, "We are much interested in the views of the United States. If you should send an army of 100,000 men to Turkey, we would discuss matters with you; if you should send an army of 200,000 men to Turkey, we would kiss your hands and say to you that you

can have your way; but in the present circumstances, we shall pay no attention to you!" This illustrates the value of having force available, and of willingness to use that force.

The usefulness of a Navy to a nation is not confined to the actual time of hostilities, but exists in time of profound peace, because of its restraining influence on nations which respond only to force.

As an instance of the futility of merely setting an example, I cite the condition of our merchant marine. To take up this subject may seem digression, but it is not, since the Navy and the merchant marine are so dependent on each other as to constitute one element of the nation's power.

I do not wish to be considered as in any way criticizing, but I would like to give you a plain sailorman's point of view of the condition of our merchant marine, and then leave it to you to judge. The act under which our merchant marine is struggling was written by an able and well-known statesman from Wisconsin with the President of the International Seaman's Union sitting at his elbow. The avowed object of the latter gentleman was to raise the standard of living of sailors of the world—by our example—with what result?

On June 30, 1914, just before the outbreak of the World War, there were only 1,066,000 gross tons of American shipping registered for foreign trade, out of a total tonnage of 7,928,000 gross tons in the American merchant marine—all but these registered ships being engaged in coastwise commerce. These 1,066,000 gross tons of shipping registered for foreign commerce were in 1914 carrying only 9.7 per cent in value of that commerce. On June 30, 1922, the American tonnage registered for foreign commerce, including the war-built vessels of the Shipping Board, amounted to 10,720,451 gross tons, carrying 34.6 per cent of our commerce. Since the end of the war there has been a steady decline in the proportion of American imports and exports conveyed in American vessels—the figures being 42.7 per cent in 1920, 39.8 per cent in 1921 and 34.86 per cent in 1922—that is, in the fiscal year ending June 30, 1922.

That is to say, the American participation in our country's own carrying trade, which reached a maximum of 42.7 per cent in 1920, is now falling at a rate that will very soon leave us as

weak and helpless on the ocean as we were in 1914, unless some vigorous measures are taken to prevent it.

We are at a disadvantage in three points—(1) Our foreign sea-carrying competitors are in possession of the field, with organizations of their own all over the world; (2) all foreign governments in some form, to some degree, subsidize their shipping—either all of it or a part of it—and aid their vessels also in other ways by discrimination against their competitors; (3) American ships, as a rule, pay substantially higher wages and provide more and better food for their officers and seamen than do foreign ships. That is to say, on American ships both wages and subsistence costs are greater than on foreign ships of the same kind, in the same trade. The wage cost of the crew of an average American cargo ship is forty per cent more than the wage cost of a British ship of the same tonnage and general character. This difference in wages alone, to say nothing of subsistence, amounts to about $1,000 a month, or $12,000 a year, or four per cent on the capital cost of a 10,000 deadweight-ton cargo steamer, purchased from the Shipping Board at a rate of $30 a deadweight ton—the price now obtainable.

As to the seaman's law of 1915, it imposes certain discriminations against American ships from which their competitors are free. But that law does not in itself make American ships' wages higher than foreign ship wages—for American ship wages were just about as much higher than foreign wages before 1915 as they are now.

The La Follette law has tended to weaken discipline on American ships, and has been more harmful there than it has in any increase in the American wage rate. Contrary to a popular impression, the La Follette law does not require that a certain proportion of the crews of our ships be American citizens. It does require, however, that seventy-five per cent of the crew in each department shall be able to understand the language of the officers.

Another provision of the La Follette law provides that no men shall have the rating of able seamen unless they have been at sea three years on deck. This is a longer period than is necessary, and the requirement itself in effect discriminates against young Americans in favor of foreigners—as was doubtless intended by the International Seamen's Union, which brought about the enact-

ment of this law, for of the members of this union at that time fully ninety per cent were foreigners.

Of the personnel of our merchant marine forty-seven per cent in the overseas and long-voyage coastwise trade now represents American citizens, native or naturalized—the native Americans heavily predominating. This, however, includes the officers below the rank of master.

Of our actual seagoing merchant marine in the overseas and ocean coastwise trade on December 1, 1922, 1,966 vessels, of 5,826,000 gross tons, were of private ownership, and 1,642 vessels of 7,429,000 gross tons, belonged to the Shipping Board. In this Shipping Board fleet, however, a large amount of defective tonnage not of present commercial value is included—so that probably the privately-owned and the government-owned tonnage of our actual serviceable seagoing fleet are practically equal in amount.

We cannot even convince other peoples of our good intentions, much less lead them to the light.

We have advertised much of the altruistic principles of our nation. We have published to the world through our press the excellence of our motives, and the unselfishness of our natures, but there has been no general acceptance of our protestations by the people of other nations. They seem to conceive that we wish to keep out of trouble and expense.

A survey of world conditions today does not promise stability.

The people of the late warring nations should be war weary, but the spirit of nationalism is as strong as ever. We see force being used to advance national policies, and the new nations arming against each other. The age-long conflict between the Moslem and the Christian is still raging, and the balance of power in Europe is shifting its weights. That overpopulated continent has millions of people who are hungry, while to the eastward is the vast mass of Russia with a population whose culture is Oriental in derivation, dominated by an autocracy which has avowed its enmity to the social structure of civilization. It would seem a time to be prepared for eventualities.

And what is our state of preparedness?

The Limitation of Armaments Treaty, while not yet binding, due to the failure of two nations to ratify, is being carried out

in spirit by the United States. We have even gone beyond its provision in one respect.

This treaty limited the total of capital ship tonnage, the total of aircraft carrier tonnage and the size of capital ships, aircraft carriers and cruisers. There is no limit on the number of cruisers, destroyers, submarines or auxiliaries.

Before the Limitation of Armament Conference, the programs of the contracting powers and their financial resources were such, that in 1925, the United States would have had an overwhelming superiority in capital ships. That potential superiority we sacrificed. We sacrificed further the right to equip bases in the Western Pacific. We gave up immeasureably more than any other power. In fact the United States and Japan are the only powers that really sacrificed anything, and Japan was made safe from any threat from us by the sacrifice of our bases. In our present position we must contemplate adopting the defensive rôle of "a fleet in being." We are even debarred from commerce destroying, unless we adopt the German System; for we are woefully weak in cruisers.

I said we have carried out the treaty in spirit. While we have not actually scrapped all the capital ships named for scrapping, we have destroyed the fighting power of a number of the old ships by destroying their guns, and laid the others up out of commission where nature's deterioration will soon render them useless. We have stopped work on the new capital ships named for scrapping.

Where we have gone beyond the spirit of the treaty has been in our reduction of personnel to 86,000 men. To place us on a parity with Great Britain and preserve the 5-3 ratio with Japan, we should have 120,000 men. This weakness of ours is all the more marked when we take into consideration that the term of enlistment in our Navy is from two to four years, that it is twelve years in the British Navy, and that the other signatories, Japan, France, and Italy, have compulsory service and large reserves. Great Britain of course has an enormous naval reserve.

All over the world today, we are in contact with foreign peoples. We are seeking markets; our fellow citizens working abroad and in competition with citizens and subjects of foreign states. Large amounts of capital and the livelihood of a large number of our people are involved. In the adjustment of the difficulties which

are bound to arise from these conditions the United States should enter the discussion as an equal and not as an inferior. And we shall be inferior if we neglect our Navy. We must be strong enough to make arbitration more profitable to our competitor than fighting.

I beg of you not to be deceived by a dream of eternal peace. The same passions, prejudices and selfishness exist today as have always existed, and will have similar results. This nation of ours achieved its independence, preserved its integrity, and extended its borders, by force. If we are to enjoy the fruits of the labors of our fathers, we must be prepared to use the same instrument.

"A Just Man Armed Keepeth His House in Order."

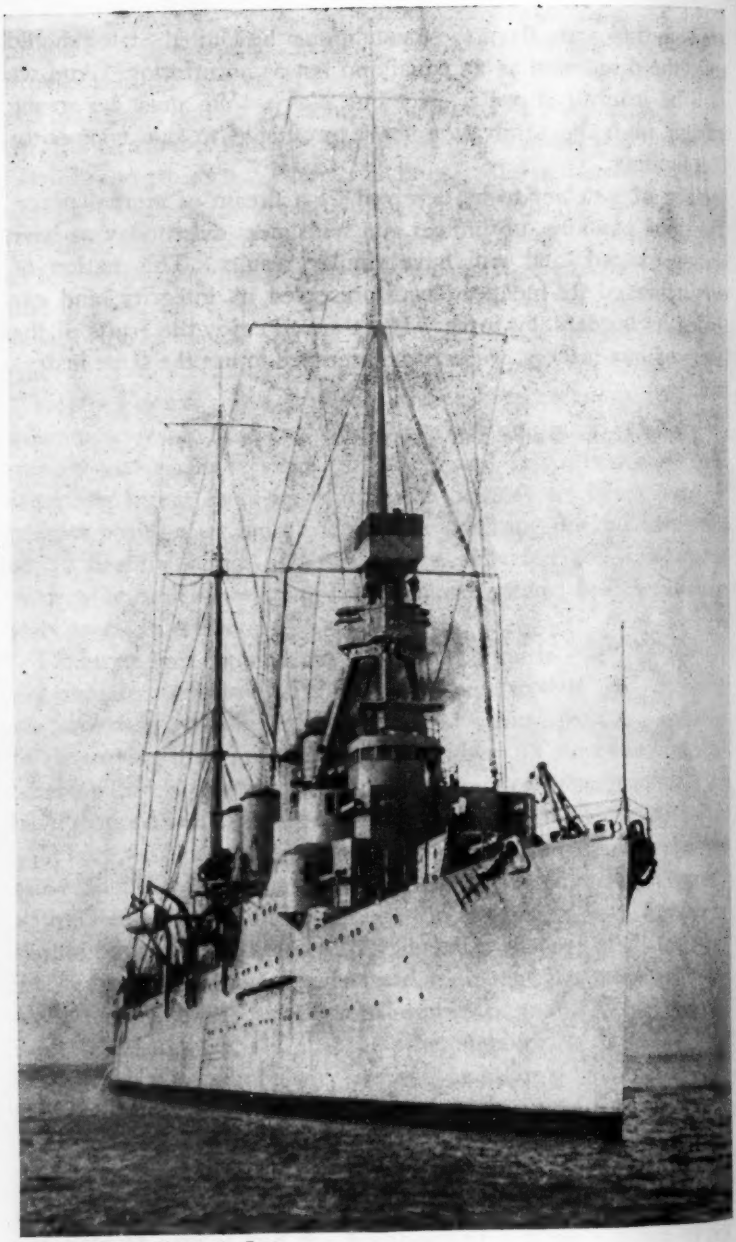


Photo by Todd Shipyards Corp.

U. S. S. Omaha

THE LIMITATION OF ARMAMENT AT THE CONFERENCE OF WASHINGTON[1]

By Rear Admiral H. S. Knapp, U. S. N., (Retired)

The limitation of land armaments may be dismissed with a word, no such limitation having resulted from the conference except in one small particular—that of retaining the status quo in insular coast defenses, contained in Art. XIX of the treaty "limiting *naval* armaments." A good reason for the failure to limit land armaments existed from the first in the fact that Russia and Poland, having two of the largest armies of the world, were not represented. Premier Briand's speech gave the *coup de grace* to any hope of action at Washington. In what follows, therefore, the discussion will be confined to naval armaments.

Naval strength is always comparative with that of other naval nations. It is frankly from this restricted viewpoint—the comparative military position in which the Navy of the United States is left—that the limitation of armament by the Washington Conference is considered in this paper. The gains from the Conference as a whole may be worth all they have cost to our military position; but that cost is real, as will appear later on.

A convenient method of examination will be a comparison of the proposal put forward by the Secretary of State on November 12, 1921, with the actual accomplishments of the treaty. Reduced to its lowest terms, the proposal consists of the following main points definitely stated:

(1) Limitation of the total tonnage of capital ships (battleships and battle cruisers) for each of the signatories. This was established.

(2) Limitation of the size of future capital ship units. This was established.

[1] Address delivered April 27, 1922, before the American Society of International Law, Washington, and published in its Proceedings.

(3) Limitation for each of the signatories of the total tonnage of auxiliary combatant ships classified as follows:

(a) surface vessels and
(b) submarines, neither of which class was limited, and
(c) airplane carriers, which class was limited.

(4) Limitation of the size of guns to be carried on board auxiliary combatant ships; this was established.

(5) Restrictions upon disposal and building of all classes of combatant ships, as follows:

(a) no disposal for use in another navy, which was accomplished.
(b) no acquisition from foreign sources, which was partially accomplished, but not entirely.
(c) no building for foreign account, which failed of accomplishment.

The ratio of the floating naval strength to result eventually between the signatories from the acceptance of the American proposal did not appear therein as a definitely stated feature; none the less, the ratio is there, a very important feature, deducible from the tabulations of the proposed allowed strength in each of the several combatant classes, for each of the signatories of the three principal naval powers. It was accomplished in part, for capital ships and aircraft carriers only.

Another feature of the proposal that was not definitely stated was the abolition of competition, but the idea lay behind the whole program. It was not so much armaments themselves that had brought the world to the point of exasperation as it was the swollen armaments resulting from competition. Some armament is recognized as a necessity by all but a few extremists; and in this connection it will be recalled that the President of the United States, before the Conference met, took occasion to warn the nation that the Conference was not one for disarmament but for the limitation of armaments. The treaty abolishes competition in two classes only, battleships and aircraft carriers. These are the most expensive ships to build because of the great tonnage of units; but they are not the most expensive per ton. In the cruiser, flotilla leader, destroyer and submarine classes, the nations are free to continue competition, untrammeled by the treaty except

for the restrictions placed upon the size of individual units (10,000 tons) and the caliber of guns (eight inches). In passing, it may be noted that competition in the past has not been confined to total tonnage or numbers; it has existed in the design of ships and guns, each nation endeavoring to obtain greater offensive and defensive powers in new designs. Unrestricted competition in design has resulted in constant increases in size of both ships and guns. There is no reasonable objection to competition in design within fixed limitations, such as are provided in part by the treaty, but not entirely; for example competition in design can still go on in the size of destroyers or submarines up to the 10,000-ton limitation and in their armament up to eight inches, as well as in their numbers.

Two other limitations, not mentioned in the proposal, were established by the treaty, both of value because looking toward the general aim of the Conference, and neither objectionable because affecting equally all the signatories. These are the limitation of the size of auxiliary combatant ships (27,000 tons for aircraft carriers and 10,000 tons for all others, which latter is practically a cruiser limitation), and the limitation of the caliber of guns to be carried on board capital ships (sixteen inches). It should be added that regulations for the conversion of merchant vessels, provision for which was declared by the proposal to be a necessity, were established to the small degree of forbidding preparations in time of peace other than stiffening decks for guns not to exceed six inches in caliber.

That the achievements of the treaty are great cannot be denied; it is also undeniable that the American proposal failed of complete success. The most important failure lies in the omission from the treaty of any limitation of the aggregate tonnage of auxiliary combatant ships other than aircraft carriers. This failure carries in its train (a) the partial failure of the principle of the relative ratio of floating strengths, and (b) the failure to put a stop to competition. It is unnecessary to go into the reasons for this failure beyond saying that it is no responsibility of the United States, to whose disadvantage it operates.

Sufficient reference has been made to the failure to stop competition. As regards the ratio, none resulted to accord with the provisions of the proposal in the cruiser, flotilla-leader, destroyer

and submarine classes of auxiliary combatant vessels. The importance of this omission may be appreciated from the fact that our tonnage in these classes is about fifty per cent greater than our capital ship tonnage allowed by the treaty. The proposal contemplated a *total* floating naval strength for each nation in a definite ratio to the total floating naval strength for each of the other signatories; put in another way, the proposal contemplated a definite ratio of balanced navies. The Conference, by confining limitation to two classes only of all that were enumerated in the proposal, vitiated the principle by failing to carry it through. It is a disappointing response to a very generous offer.

The American proposal put forward was an entity, to be accepted as an entity if its aim was to be accomplished. By just so much as it failed of complete acceptance in any important feature did it fail in its aim.

It was not to be expected that the proposal of our Government would be acceptable in every detail; such adjustments as the retention of the *Mutsu* by Japan did not affect the general principle. Nor was it to be expected that some additions to its specific provisions would not be made; such were the limitation of the size of auxiliary combatant units and of the caliber of guns carried on board capital ships, both of which appear in the treaty and are useful additions to the provisions of the proposal while neither vitiates the general principle. It was to be expected that no delegation would accept any addition to the proposal that would be a limitation imposing an unbalanced handicap upon the operations of its own floating naval force by comparison with that of one or all of the other nations represented at the Conference.

It is interesting to note the relative tonnages proposed to be scrapped by the American program. In the following comparisons the American tonnage scrapped will be used as the basis, reckoned as 100 per cent, and the order of mention will be United States, Great Britain and Japan in each instance. Considering total capital ship tonnage scrapped, the percentages are, respectively, 100, sixty-nine and fifty-three. This is the comparison usually stressed in non-technical comment, but it is very misleading because it includes for all three nations a number of superannuated ships due already, or about to become due, for scrapping, Conference or no Conference. The fairest comparison is based

upon new tonnage laid down plus that about to be laid down and for which expense had been incurred in the preparation of material; on this basis the respective percentages are 100, twenty-eight and forty-six. The offered sacrifice of the United States was not only the greatest absolutely; it was great out of proportion to the relative ratio of strength proposed to be retained. There is no gainsaying the generosity of the American offer. No further concession was needed to make manifest the sincere attitude of the United States; nor should the United States have been expected or asked to make further concessions—certainly not unless the result would affect all equally and not involve an additional relative sacrifice by the United States.

The concessions offered went further than accorded with the general sentiment of experienced officers of our Navy. Occasion is taken to say here that the general sentiment of American naval officers was not in opposition to limitation, but quite the reverse. That officers were not prepared to go as far as others might was, however, both natural and proper. The Navy is the country's first line of defense, and its personnel deeply feels the responsibility entailed. Its motto for the country is "Safety First"; its duty is far-sighted preparedness—such preparedness as the action of other agencies of the Government may make possible. In advice or action, naval officers have a life-long responsibility for the security of the nation, in which respect they, in common with their brothers of the Army, are in quite a different position from that of any other persons in the Government. Questions of immediate expediency do not have much weight with them, and they are not perhaps so inclined to take chances with national security as those having a shorter tenure of office. Upon them is bound to fall the brunt of an underestimate of the necessity for defensive measures. That they are conservative is the natural consequence. Their conservatism did not, however, go so far as to lead them into opposition to the principle of limitation of armaments.

Your attention is now invited to one feature of the treaty which is approached with considerable embarrassment in this presence, but which cannot be avoided if my professional opinion of the treaty is to be given with honest fullness. I manifestly cannot speak for the Navy Department; and, while I believe that

my sentiments in what follows are generally shared by experienced brother officers, I do not venture to speak for them, but speak for myself alone.

The opening sentence of Art. XIX of the treaty reads:

> The United States, the British Empire and Japan agree that the status quo at the time of the signing of the present Treaty, with regard to fortifications and naval bases, shall be maintained in their respective territories and possessions hereunder.

When the specifications are read all the territories and possessions to which they refer are seen to be insular. The agreement includes everything insular that Japan holds now or may acquire outside of the islands of Japan proper; it includes our Aleutian Islands and everything insular, present or future, under our flag west of the Hawaiian Islands; and it includes Hong Kong and present or future insular holdings of the British Empire east of 110 degrees east longitude, excepting the Canadian Islands, Australia and its territories and New Zealand. It will be noted that the language of the article is "fortifications *and* naval bases," not "fortifications *of* naval bases," which latter would have been much less sweeping. Status quo is defined in the last paragraph as follows:

> The maintenance of the status quo under the foregoing provisions implies that no new fortifications or naval bases shall be established in the territories and possessions specified, that no measures shall be taken to increase the existing naval facilities for the repair and maintenance of naval forces, and that no increase shall be made in the coast defenses of the territories and possessions above specified. . . .

An examination will now be made of the equities of this remarkable graft upon the proposal of the Government that called the Conference. The proposal made no mention of naval bases or naval facilities of bases, or fortifications or coast defenses, and it must be presumed that the omission was deliberately intended after the months of preparation for the Conference.

Mahan gives position, strength and resources as subjects for examination in determining the availability of a situation for a naval base. Actual strength and existing naval facilities will first be considered, in doing which it must be remembered that the details of foreign fortifications are rarely known accurately;

their general scope is, however, usually known or believed to be known.

The United States has in Guam a location for a naval base that is wonderfully situated strategically. To state that its fortifications and equipment are derisible now is to disclose no secret. This is no fault of the Navy which for years has sought in vain for the appropriations to make Guam a secure base. In the Philippines there is another great site for a naval base in the Manila region. The entrance to Manila Bay is fortified, but the fortifications need modernizing and the naval facilities are far from being what would be necessary to support the operations of a fleet in war. To meet a menace to the territories under our flag in the Western Pacific, we need a secure naval base in the Philippines and another intermediate between them and the Hawaiian Islands. While neither Guam nor Manila is in efficient condition to support a fleet in war, up to February 6 last the United States possessed the sovereign right to make them so.

The British have at Hong Kong a naval base now strongly fortified and well provided with supplies and equipment, including drydocks, either on the island or in the leased territory of Kowloon on the mainland just across a narrow channel. Hong Kong is ceded territory; Kowloon is leased only. Yet the two are really a whole for British purposes, and Kowloon does not fall under the inhibition of Art. XIX, for it is not insular. In the convention of June 9, 1898, between Great Britain and China for the extension for ninety-nine years of what was therein designated as the "Hong Kong territory" although the extension was entirely on the Kowloon—mainland—side, the right to erect fortifications is recognized. As far as Art. XIX under consideration goes, the right is not denied to the British to fortify and increase naval facilities on the Kowloon side at Hong Kong. It is evident that the British exercised no self-denial in subscribing to Art. XIX.

Japan has fortified Kolung in the northern end of Formosa; and in the Pescadores Islands west of Formosa she is believed to have a strongly fortified and well equipped base, for light vessels at least and probably for all classes of ships. And, what is most important, these bases are only about one thousand miles from all the support of the homeland, while by comparison Guam is 5,500 and Manila 7,000 miles from our Pacific coast.

Reviewing this phase, it is difficult to discover any trace of equity for the United States in Art. XIX.

Next considering resources, those for naval purposes in the islands themselves may be regarded fairly enough as roughly equal for all three nations. Practically all resources must come from the home territories to the existing insular bases. Here distance, a function of position, counts heavily for Japan as compared with either the United States or Great Britain; in time of war this advantage would weigh less heavily against Great Britain than against the United States because Japan flanks our route to the Far East but meets that of Great Britain end on. Regarding the equities in the light of resources, the United States again appears to be a loser by Article XIX.

It is, however, in respect of position considered from all sides that the discomfiture of the United States resulting from the status quo is completed. In the unfortunate event of hostilities with Japan, our Philippines are 7,000 miles from our home coast, while only 1,500 miles from her home islands; her outlying islands are at furthest about 1,000 miles from her home islands, while 7,500 miles from our continental coast. Japan's possibilities of attack upon our outlying islands, or of defense of her own outlying islands against attack by us, are immeasurably superior to those of similar action by the United States. No fortifications, no provision of naval facilities, can altogether overcome that handicap; and it was precisely for that reason that a disparity of floating force was an essential feature of the proposal. Naval opinion, in accepting the 5-3 ratio of floating strength between the United States and Japan did so on the basis of the status quo of sovereign right—not the status quo of insular fortifications, naval bases and naval facilities. It had no idea that the latter, if proposed, would be entertained nor the former be yielded. With naval bases in our western islands of the Pacific fully fortified and provided, the 5–3 ratio of floating force would with difficulty enable the United States to maintain parity at sea in those waters; much less would it enable the United States to undertake a policy of aggression, which has never been the aim of the Navy any more than it has been the aim of the general Government. For the defense of our Pacific islands, and with no idea of aggression whatever, secure and well-provided naval bases are necessary.

To surrender the right to go beyond the status quo is to make the defense of our western possessions—their retention—well-nigh hopeless in case of need. Should they fall, their recapture would only be possible at the cost of great treasure and of very tedious and lengthy operations.

As between Great Britain and the United States no such inequality exists between themselves in respect of distance to the Far East as both countries have with Japan.

Regarded from the viewpoint of position—comparative distances—Art. XIX is glaringly inequitable to the United States.

The Japanese doubtless made a sacrifice of national pride in accepting the 5–5–3 ratio of floating strength, which definitely placed them in third position as a naval power. But whatever they sacrificed in that respect, they have more than made up by their success in securing the inclusion of Art. XIX in the treaty. I say their success because I have never heard of the proposal coming from any other source, and all the world knows that the Japanese did make it. At practically no cost to themselves they have secured all that they were actually straining, and were prepared still further to strain, their financial resources to obtain by their ambitious building program, now no longer necessary.

Art. XIX fatally impairs for the United States the 5–3 ratio of floating strength with Japan in so far as the Western Pacific is concerned. The United States has yielded the possibility of naval equality in that region; control she has never sought. It is beside the mark to say that we are as well off as we were before the treaty. That is a half-truth—true only in the material sense; in the sense of sovereignty we have given up the right to better our situation, and that without adequate return—certainly without return in kind. Our military prestige has received a blow; and with the waning of military prestige political prestige wanes also. The treaty may very well mark the beginning of a decreased influence in the Far East, with attendant loss to our proper, if selfish, trade interests, and to our altruistic purpose for China and Siberia.

In closing, permit me to remind you again of what was said at the beginning—that this paper has been prepared from a purely military standpoint. I am not without full appreciation of other considerations, which did not appear, however, to come within

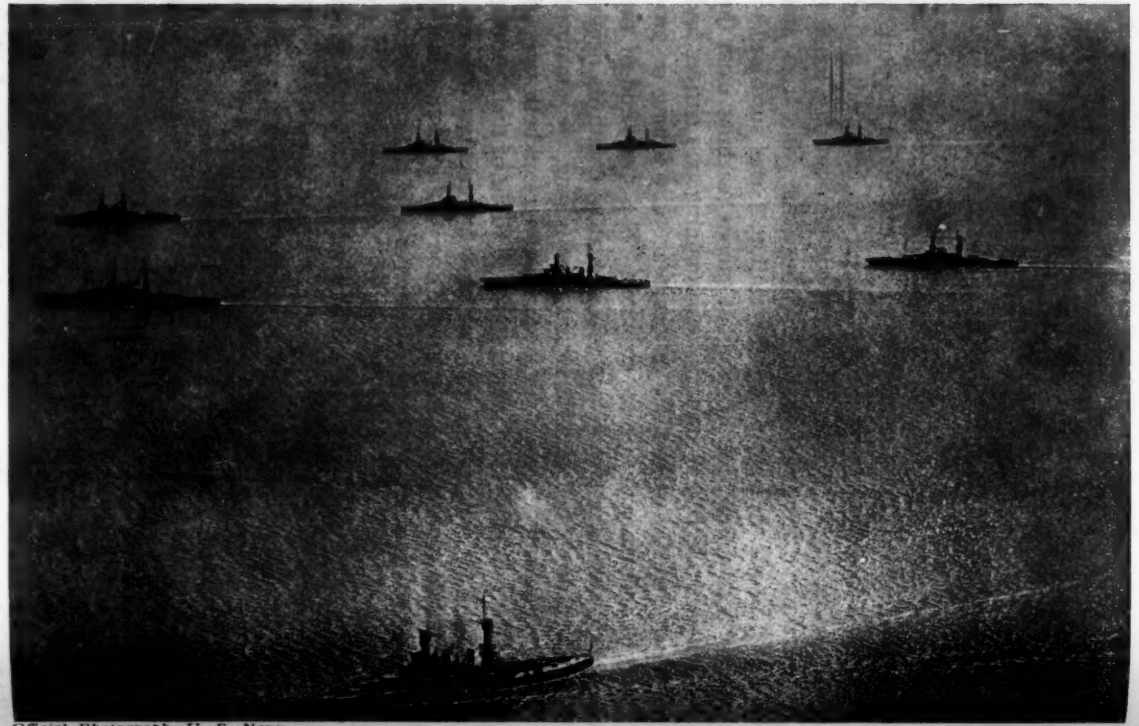
the purview of my invitation to address you. This has been a material estimate of a part of the work of the Conference, aside from whatever its spiritual and imponderable achievement as a whole may prove to be.

INCIDENTS AND PRESENT DAY ASPECTS OF NAVAL STRATEGY[1]

By Captain Frank H. Schofield, U. S. Navy

In the winter of 1915 while in command of the cruiser *Chester*, I was sent to the West Coast of Africa to lend moral support to the Liberian Government on the occasion of a widespread native revolt. While steaming down the coast one pleasant day, looking for a corrugated iron roof to show through the palm trees and tell me I was off the port of my destination, I was surprised to encounter a long line of native dugout canoes reaching from the shore seaward for miles—each canoe containing two natives and two rifles. Nearby were other canoes peacefully fishing or proceeding to and from the fishing grounds. The shore end of the line was opposite a native village that was at war with its neighbors. The canoes, including those that were fishing, were manned by men of that village tribe. Their enemies were on both sides of them but the jungle was too impenetrable to admit of their joining forces except by way of the sea. One of the enemy tribes was very dependent on fish for food and the one on the other side had to get part of its rice by friendly barter up the coast. Neither of these tribes were very good seamen and knew none too much about canoe building. One of them had recently migrated from the interior to the coast. So when the war broke out the seagoing tribe stretched its line of canoes seaward and whenever a venturesome enemy fisherman put to sea, they took him, and whenever an equally venturesome rice trader came out, they took him, too. Then some days later the canoes of these unfortunates would drift on their home shores, fearfully decorated with the headless trunks of their late occupants. So when the *Chester* came to the canoe line it was lolling lazily in the sun with little to do, and security reigned on the fishing grounds and in the village on the

[1] Address delivered March 3, 1923, before the Army and Navy Institute, New York.



Official Photograph, U. S. Navy

BATTLESHIPS OF THE BATTLE FLEET STEAMING INTO PANAMA BAY TO JOIN THE SCOUTING FLEET

shore while the tribe got ready to deliver the *coup de grace* to their enemies.

It struck me at the time with amazing force that there before me lay all the aims and accomplishments of sea strategy and tactics and sea power in war.

To fight and to overcome in order:

To control the use of the sea for one's self.
To deny it to one's enemies.
To bring the pressure of want on the enemy people.
To mobilize land forces while the sea forces held the enemy in check.
And finally by combined land and sea action to bring the enemy to terms.

No books on naval strategy had ever reached that savage tribe, but the stern fight for existence made the truth unfold before them. They survived. Their enemies became their vassals.

Naval strategy is not something separate and distinct from national life, but it is a part of a whole that we may call national strategy, a whole that is asociated with our everyday existence, both in peace and in war, a whole that guards and gives security to our future, through security from invasion, security in travel and trade, security against a lowered standard of living, and in the freedom to deal on equal terms with all the world.

The fundamental idea of naval strategy is that nothing is of any importance either in peace or in war except as it influences events on land. All the fleets in the world may meet in battle and destroy each other and the result will be nothing if that battle does not change what was happening or was to happen on land. In other words, the Navy is important solely because it does influence events on land. Naval strategy always has an objective related to land operations, be they the operations of peace or of war. Whatever the effect of naval strategy may be it is the effect on those who live on or operate upon the land that counts. Naval strategy deals with sea methods but finds its reward in land successes. Too often the casual thinker says it is the business of fleets to fight each other and then assumes he has said it all. Back of every sea battle there is a definite object and that object bears a direct relationship to land warfare. Take the battle of the

Official Photograph, U. S. Navy

Jutland. Why should either side fight? Germany desired access to the sea that she might do two things—starve England out, and open the road for supplies to her own ports. Both were land objectives. So, too, England thought of the land—her distant possessions, her armies in France and the Near East, her vast populations dependent on food that came to them from over seas. The battle was a sea method—its object a final success on land. The Germans required a smashing victory to gain their object. They failed to get it. In terms of the savage tribe and its navy of canoes, the allied navies wouldn't let the Germans fish or go for rice on the sea, and so they had at last to yield.

The spirit of the age is competition at home and abroad. Modern industrialism and modern trade conditions are driving governments irresistibly toward a keener competition than ever before. Propaganda, commercial rate-wars, tariffs, concessions, spheres of interest, mandates, protectorates, and annexations are phases of international competition. Back of all these phases lies peace strategy—both naval and military, because war is the ultimate form of competition.

I shall make no effort to demonstrate to you the necessity for an American navy second to none. That idea is accepted in principle by everyone, but has not yet been realized. There is always opposition to it both at home and abroad; at home for reasons of economy, abroad because a weak American navy is more consistent with the national aims of some of the great powers. You are all familiar with the yearly efforts of the Navy to get appropriations for new ships. That is a part of its peace strategy to build a navy second to none. But the navy has taken other steps than that to help toward its aim of equality with the greatest.

During the Armistice and subsequent peace negotiations in Paris the question arose as to what should be done with the German Fleet. The American Naval Advisory Staff was firm throughout the negotiations for the destruction of that fleet. All other delegations were equally firm for a distribution of that fleet. Americans in very high authority spoke slightingly of the naval idea that the German ships should be sunk instead of parcelled out, but there was a sound reason for the American naval stand. The plan of the European negotiators was for the German

Fleet to be added to European navies, and except for a few light craft, none of it to the American Navy. In other words, German and Austrian battleships, submarines and cruisers, were still to float in navies that might some day point hostile guns at America. American naval officers could not see the logic of that arrangement, nor could they see the need for loading an already overburdened world with the support of the great German Navy. Sound American naval strategy demanded that we should not be weakened relatively by victory. There was but one way to accomplish that end—sink the German Fleet. The Germans did us that great service before the negotiators had come to a final decision, and at a time when it seemed as if the generosity of our representatives would weaken our navy immeasurably. Had the plan of the Allies been carried out Great Britain would have come out of the Peace Conference with about fifty-one dreadnaughts, the United States with her own and no more, seventeen. To defeat that plan was equivalent to building probably a dozen capital ships for our navy. Our naval representatives were pushing the principles of peace strategy for a definite end, the preservation of our relative naval strength, a step toward a navy second to none.

The question of relative strengths came up again when it became known that there was to be a Conference for the Limitation of Armaments. Obviously here was an opportunity to gain or to lose much in relative strength. Great Britain looked across the sea and saw that the completion of our building program would wrest the mastery of the sea from her hands. Had I been a British naval strategist, my aim at the Conference would have been:

1st. To do away with the American battleship and battle cruiser building programs, because therein lay America's naval superiority.

2nd. To preserve British superiority in cruisers because with capital ships limited in numbers, the cruiser became a very important item of naval strength, and cruiser superiority meant naval superiority.

These would have been the essentials of my strategy as a British officer.

Had I been a Japanese naval strategist, I would have done all that I could do to keep America from fortifying further her naval positions in the Philippines and Guam, and of operating her naval forces there. I would have tried to consolidate and strengthen Japan's hold in the Far East through making it difficult for America to interfere. I would have seen that American weakness in the Far East was Japan's strength, and would have fought it out on this line.

These are strictly the views of a materialist; they do not deal in the loftier motives of idealism. I am firmly convinced that they represent the views of some of those who negotiated with America around the council table.

America on the other hand was willing to make sacrifices to promote a better feeling in the world—to make the greatest gesture for good will ever made by a nation.

The General Board was called upon to prepare recommendations. It worked nearly six months continuously on this and collateral problems that were before the Conference. In all of its studies and its recommendations it sought to guard our naval position because it believed that this was part and parcel of our national well-being. Equality in naval strength with Great Britain and a certain superiority over the naval strength of Japan were fundamentals of our proposal. The second-to-none ratio was adopted, but we were left with our older instead of the new ships. We had hoped that there would be a limitation of tonnage in all essential classes of fighting ships. That hope was wrecked on "submarine" rocks, and the door left open for competition in very expensive types of ships—submarines, destroyers and cruisers. We regarded the failure to limit all classes of fighting ships as a misfortune, because our chief naval competitors are more free to carry out their naval programs than we shall ever be. In the years to come you are going to hear much about cruisers and submarines if the construction of these types is not limited. Today Japan is spending more money on cruisers and submarines than all the other powers party to the treaty. Its officials explain that labor and economic conditions make this action necessary, but the naval officer looks to results; and he sees a great strengthening of the Japanese Navy, and the dropping behind of America in relative strength.

You've seen something in the press about the necessity for us to modernize our battleships. Here is the reason for that demand. When the Washington Conference assembled there were two general bases of limitation of armament possible: the British fleet, built and building, and the American fleet, built and building. As the British had built no capital ships during the war to replace older ships, they were under the necessity during the war of keeping their ships, already built, up-to-date in order to have them ready for instant action. Their turret guns had a greater range than our older guns. They built large extensions to the under-water hulls of their ships as defense against torpedoes; and they increased their protection against aircraft bombs, and against gunfire, by thickening their deck armor. We did none of this work on our older ships because we were building all these improvements into our new ships, eighteen in number, and we expected that these ships would soon replace the old ones. So here was a problem in peace strategy, to make our older vessels as good as those abroad. There is but one way to solve that problem. Increase the range of our guns and increase the protection of our ships against torpedoes and aircraft.

It is very reasonable to ask why our guns were not given long enough range in the first place. The answer is that when the earlier ships were built no one thought of battle ranges beyond ten miles. But the use of airplanes has made it possible for us to open battle at twenty miles range, if the guns can be elevated enough to fire that far. It is impossible to see from any ship how shots are falling, if they fall more than ten miles away. You have to get high up in the air to see beyond that range. Then, after you are up where you can see, you must be able to talk back to the firing ship and tell it how to aim—higher or lower, right or left, and how much. The airplane, high in the air, equipped with radio, can see where the shots fall and can direct the ship's fire with accuracy. Two years ago in the plotting room of the battleship *Texas*, well below the water line of that vessel, I sent messages to a spotting plane 6,000 feet up and ten miles away and had replies back and written on a blackboard before my eyes, in an average of seven seconds of time. This result required careful, simple code work and strict training, both within and without the ship. It showed that a new naval battle area was

opening up, the area between ten and seventeen miles from the firing fleet, the area where aircraft would control the fire. That is why we want to increase the angle of elevation of our turret guns. Today, if our battle fleet met the British treaty fleet in action, eighteen British ships could begin firing at and hitting our fleet at ranges where less than one-third of our ships could reply effectively until the range had been reduced several miles. We should ordinarily expect this closing of the range to take not less than half an hour. For half an hour the enemy would have a three to one advantage and if he chose might continue that advantage indefinitely. The Forts of Liege and Namur, the German squadron at Falkland Islands, and the British squadron at Coronel went down before the fire of guns that outranged them. A navy second to none must be able to fire the first shot as well as the last one.

The war caused large numbers of destroyers and submarines to be built. The treaty for limitation of naval armament did not reduce the number of these, so now capital ships find themselves, the world over, confronted by the greatest torpedo menace that has ever existed. There may be as many as sixty torpedoes available even now for firing at each capital ship. Unless these ships are specially protected, three or four torpedoes might put them out of action. Some way has to be found to protect those ships better against torpedoes. The British blister or enlarged outer hull already mentioned seems to be well adapted to the purpose. There is little doubt today that older British ships are twice as well protected against torpedoes as ours of the same date, not because they were better designed in the first place but because of the modernization in this respect that they underwent during and after the war. Fighting ability at sea depends very largely on the ability to take punishment and still stay afloat. Our navy is not second to none if it can't take the blows as well as any.

The menace from aircraft bombs makes it necessary for our oldest ships to have their decks better protected. All of these items will cost us about thirty million dollars just to bring our eighteen capital ships up to an equality of strength with British capital ships.

Germany had but scant opportunity to use her cruisers as raiders during the World War because Great Britain, close by,

blocked her every exit to the open sea. But suppose that Germany had been somewhere on the sea, with wide-spaced ports like our own, there would have been many *Emden* raids instead of two or three—and for each one there would have been needed a superior force to send in pursuit to destroy that cruiser raider. If ever again the United States has to fight a naval war you may expect enemy cruisers to attack our supply ships, our merchant ships, and our transports in every ocean, but especially in that ocean where lies the key to success. So we have to think of how we can meet that menace.

Great Britain has over sixty modern cruisers, every one of which is faster than any vessel we have, except destroyers. Japan has nearly thirty modern cruisers, built or building, that are also faster than any of our vessels. In a few more months we shall have ten new fast vessels to offset these ninety foreign vessels. How would you like it if, during war, in reply to a demand for the protection of our commerce, the Navy Department had to admit that we had but a total of ten cruisers to oppose those ninety and that these were needed to help guard the fleet at sea? Or suppose you were the captain of an American cruiser sent to drive enemy cruisers away from our merchant ships, and each time you sighted an enemy cruiser he showed you a clean pair of heels? You surely would wish for fast and powerful cruisers to do your duty well. It takes years to build them. No navy is "second to none" if its cruisers cannot follow up the victory of its fleet and drive the enemy ships from the sea. The armored ship is never in large enough numbers to undertake this task; the cruiser has to do it—both before and after battle, through the long months of economic pressure on the enemy country and on our own.

The fast merchant ship is always a potential cruiser. A single power in the Atlantic owns fifty-eight fast merchant ships to our nine—a further emphasis on our poverty in cruisers. Peace strategy for us demands cruiser strength equal to that of the British Empire—and one and two-thirds that of Japan. Any less provision is a sacrifice of the principles of the Treaty, and the acceptance of a secondary naval position in the world. Twenty new modern cruisers are required to bring our navy up to treaty ratios. The difference between four and one-fourth per cent

and three per cent on the British debt to us if applied for three years to building American cruisers would supply this deficiency. Incidentally that same little concession to the British, amounting to sixty million dollars a year, will be just enough to build them two super-dreadnaughts per year when they begin their replacement program.

The Washington Conference registered a very emphatic disapproval of the use of submarines in commerce destruction, but the submarine, still in its restricted sphere, is a very important instrument of naval warfare. Of course its principal weapons are the torpedo and the mine. But it has an employment quite independent of the use of those weapons and that is scouting—long distance scouting. A submarine is the only type of moderate speed vessel that may proceed unsupported to hostile waters and remain there to observe enemy movements. A surface vessel would be discovered quickly by the enemy and driven off or sunk, but the submarine can see and not be seen. Recent developments in radio now make it possible for submarines to send radio reports over extremely long distances.

One of the enemies of submarines has been the easily visible wakes of torpedoes when running through the water. They not only betray the presence of the submarine but they indicate the position of the submarine when the torpedo was fired. The torpedo is coming that will leave no trace.

The listening devices have now been so far perfected that submarines may hear vessels long before they are seen and may determine their direction and general character. I remember sitting one day during the war at the listening device and picking up the sound of a distant vessel and then determining its direction. I gave the head piece to the regular operator and asked him what he made out. He confirmed the direction I had determined and then said: "That sounds to me like an American destroyer." I went on deck and scanned the horizon but saw no vessel. Fifteen minutes later we sighted the smoke of a vessel in the indicated direction which proved to be the American destroyer *Aylwin*.

All navies are going to keep on building submarines, and most of those submarines are going to be the big long radius type. The navy that falls behind treaty ratios in efficient submarines falls behind in an essential element of sea power. Japan is building

nearly half a hundred submarines while practically no new submarines have been authorized for the American Navy in the last five years. During that time the mine-laying submarine has been developed and used with great success. It is sure to be an important factor in any future naval war. We are not less than twenty-four submarines below the treaty ratio of submarines built and building.

No survey of the naval weapons of today and of their influence on naval strategy would be complete if the newest of these weapons—aircraft—were omitted. The recent efforts in our navy have been toward getting naval aircraft to sea with the fleet, and toward developing types suitable for the important functions of scouting, bombing, torpedo attack, and fire control. The air forces that will base on shore will add greatly to the defense of the coast. The air forces that go to sea may have many opportunities for surprise attack on enemy fleets and shore positions, and may contribute greatly toward success, but developments to date do not at all warrant the expectation that naval aircraft will displace the fighting ships that sail on the surface of the sea. In this opinion the navy is a unit, aviators as well as those who are not aviators.

The developments of aviation lessen the value of naval bases that are not well removed from foreign territory. If British Columbia, for example, should ever be at war with the United States, the Navy Yard at Puget Sound, Washington, would be within easy range of air attack. In the same way either Bermuda or Jamaica are within possible flight distance of the important naval bases of New York, Philadelphia, Norfolk, Charleston and the Canal Zone. It will be one of the strategic tasks of the future to prevent hostile aircraft from assembling in positions from which they may attack us.

The threat of air attack decided the location of a great American mine base during the World War. We were going to lay a mine barrage across the south end of the Adriatic Sea. The most convenient locality for the mine base was at Corfu, within a few miles of the barrage; but the fact that Corfu was within easy range of air attacks led us to pick Bizerta on the North African Coast, over five hundred miles away. That base had had more than forty thousand dollars spent on it when the Armistice

came. It wouldn't have done to accumulate shiploads of mines in a base where a lucky raid by an enemy might have wiped out the base and delayed the project for months.

Article XIX of the treaty for Limitation of Armament forbids us to strengthen further the defenses or the naval base facilities in Guam, the Aleutian Islands, and the Philippines. Fortifications and naval bases are essential elements of naval strategy. They enable fleets to go, and to go quickly. Fortifications add strength to the Navy—actual strength in actual ships. In naval strategy it is not just ships that count, so much as ships that are in the right place at the right time. Few men realize how greatly suitably spaced, defended advance positions add to the actual naval force present in a given area of operations. One or two illustrations may not be amiss.

We have three important outlying naval positions in the Pacific. One of them is probably secure against attack—Pearl Harbor. The others in Guam and the Philippines are not fully secure at present. Suppose that Pearl Harbor was to be the base of all our naval operations in the Western Pacific, 4,500 miles away, that no other defended position was available to us in attempting to defend our interests in the Western Pacific. Suppose we had ten cruisers of 10,000 miles cruising radius to operate in war in that region. Each of these would burn up nine-tenths of its fuel going to and returning from station and could stay on station a maximum of three days out of forty. That is, the ten cruisers would not be enough to keep a single cruiser constantly on station if it had to come back to Pearl Harbor each time for fuel.

Take these same ten cruisers and base them in Guam, 3,000 miles nearer their station, and, estimating equal efficiency of operation, each one of them would spend fifteen days out of forty on station,—a change in individual ship efficiency due solely to advancing the most advanced fortified and prepared base from Oahu westward to Guam. Fortifications and foresight in this case would mean a demonstrated increase in the efficiency of each cruiser of 400 per cent. It is not good business to have rest billets fifteen days' march behind the fighting line.

I remember having heard Admiral Oliver, of our service, say more than ten years ago, that for the price of a single battleship expended in defenses and facilities at Guam, we might gain the

equivalent of several battleships for all operations in the Western Pacific. This is strictly true. It was recognized by the Japanese in negotiations preceding the treaty for the Limitation of Naval Armament, when they consented to a ratio of 5:3 in capital ships and made that dependent on our acceptance of Article XIX of the treaty, limiting our fortifications and naval bases in the Far East to the status quo. Battleships cannot maintain their efficiency, even in secure harbors, without occasional use of shore repair-and-docking facilities.

The power that has fortified advanced bases can act quickly,—a highly important thing to do. War usually comes swiftly. At its beginning neither side is fully prepared, so that bold steps may be taken successfully then, which later would have no chance at all of success. Admiral Togo knew this when he attacked the Russian ships at Port Arthur the day war was declared. The opportunity was his because fortified bases were near at hand. When months elapse between the declaration of war and the arrival of defending forces in the theater of war, they will find there that their advance will be slow, painful, and costly, where foresight and preparation might, by bringing them swiftly into action, have made success an early certainty. Further, when the naval advance is delayed, fleets are likely to be placed in that most embarrassing of all positions—the necessity of having to fight land forces in order to gain a base for themselves.

Many of you crossed the Atlantic in transports escorted by naval vessels. At the far end of the voyage you found a friendly secure harbor. If ever you cross the ocean with the navy to gain a hostile port, you will understand very vividly what it means not to have secure advance positions.

If anyone asks why fortified outlying naval bases expedite naval action, the answer lies in the extent of the support a great naval expedition requires. As an example, if we were to operate our present naval fighting vessels in a war in the Western Pacific, we would require the service of every oil tanker flying the American flag, an enormous tonnage. Storage tank facilities are useless to us if we erect them where their safety is in question. But make the advance positions secure by fortifications and by garrison, and much of the delay incident to assembling a great merchant fleet of tankers as a preliminary to a naval advance would be

wiped out, because we would accumulate oil at those positions in time of peace. The permanent and secure defense of suitable fuel reserves in advance positions will put more speed into the ships of the fleet advancing to war than any other act of which I know.

The great strength of the British fleet is not alone in its size but in the fact that wherever it goes a friendly, fortified harbor waits there to receive it and supply its needs. America has just two such harbors outside our continental territory, the Canal Zone and Pearl Harbor, and the latter is so small that it cannot hold a quarter of the war-time strength of the fleet. The state of our outlying bases in the Pacific has been such that prompt naval action in support of our outlying territory has been an impossibility. Article XIX of the treaty perpetuates this condition; Japan on the other hand is always in position to act swiftly. What we have given up in this respect is the right to correct a strategic weakness. If by so doing we have brought about an unselfish friendship, where enmity or fear reigned before, then the sacrifice is rewarded. We alone made that sacrifice. So, too, in capital ships—we alone made the sacrifice.

I doubt if any of you ever thought of fortifications as scouts. Imagine for a moment a great fleet out across the Pacific to war. Imagine that all American island possessions have fallen into the hands of the enemy. That fleet then proceeds in the dark. The whole Western Pacific is beyond the closed door and the commander of the fleet cannot know what is happening there. The air is full of noise and rumors, but no one can tell him which are true. What does that commander want to know? Where is the enemy fleet? What harbor may he steer for, there to guard his fleet while refueling? What, in general, is the enemy doing? The investigations of some of his more advanced vessels may light his way a little distance, but he can have no certainty of information at points that are distant from his fleet. But if the essential advanced positions are guarded by fortifications that hold the enemy back, each day he may get the positive information that the harbors they guard are still at his disposal; that the enemy is, or is not, operating in their vicinity. It is hard for us to sense fully the responsibility of an American Fleet commander, taking his war fleet across the ocean to battle. On him alone rests the

responsibility for national success or failure in war. If he fails, the fleet fails and is lost, and the war ends in defeat. For no army may go across the sea that is without a supporting navy. We may defend ourselves at home successfully, but every outlying possession, every distant interest, will yield in war unless the Navy aided by secure positions may fight far from its home bases. Do you wonder that knowing this, we never lose sight of the task that may lie ahead of us, or that while we give our every thought to guarding peace we do it by arranging, so far as we may for success in war?

The strategic developments at the Washington Conference, by limiting the position and the strength of naval bases, have accentuated the importance of building ships capable of the widest ocean movements. When Germany was building her navy she saw clearly that it had to be specially adapted for North Sea fighting. So Admiral Von Tirpitz designed ships of small steaming endurance and put the excess construction weights into protection and battery. Great Britain on the other hand had to look both to the North Sea and to the wide ocean, so her ships were more truly sea-going ships than were the German ships. The three great naval powers that are now left will all turn their attention to blue water navies. Japan has already abandoned her program of small cruisers and small submarines and substituted for it a program of the largest types—capable of visiting our Pacific Coast and returning to Japan without refueling. This is sound strategy, but not good news for us.

Let us turn aside, for a moment, to consider the present Dardanelles situation, for there questions of national policies and national strategy, including fortifications and naval strategy, exist in a very intimately related form.

The vicinity of the Dardanelles has always been one of international tension, incident to the centering there of ethnological conflicts and of highly important land and sea trade routes. All of Europe and much of Asia has been and is still concerned in decisions at the Dardanelles. The Straits are a great public highway provided by nature leading to a sea that washes the shores of Turkey, Russia, Roumania, Bulgaria, and some lesser states, and that receives the waters of five great navigable rivers. This sea, in consequence, does not belong to a single power, as it once did when

Turkey owned all its shores, but belongs to all the world as a part of the highway of trade. Any and every attempt to block or to impede the access of sea-borne commerce to the Black Sea is subversive of world organization and contrary to world interests, as it would set up international pressures and tensions that would lead inevitably to renewed wars. This is more true now than ever before, because the organization of the world is getting to the point now where free inter-communications is a necessity, and where arbitrary interruptions to commerce are calamities.

We can understand more clearly the naval strategy questions at issue in the Near East, if we remember that Russia, potentially one of the greatest of world powers, exports in normal times one-half of all her products via the Black Sea, that she has no other sea outlet comparable in importance with that through the Dardanelles, and that this sea outlet has been, until the present, fortified and guarded against her. The importance of this outlet to Russia will increase greatly with the growth of Russian population and especially with the improvement of Russia's means of internal transportation, so that no solution of the problem that imposes an artificial barrier between Russia and the sea can contain within it the elements of stability. The temporary interests of those now in power in Russia may seem to them best served by a closed door, but this cannot be the permanent advantage of Russia or of other Black Sea powers. These considerations have led to a general acceptance in the past, by the powers and by Turkey, of the principle of freedom of passage through the Straits for the merchant vessels of all nations, but not to a similar freedom of passage for men-of-war. There have been times when men-of-war might pass freely, while at other times, as during all of the recent years, the passage of fighting vessels of real strength has been prohibited by international treaty. These variations in policy were dependent almost wholly upon naval strategy.

When there are no naval powers bordering on the Black Sea, it is to the interest of other powers, and especially to those powers that have political or economic ambitions in the Black Sea, to have the navigation of the Dardanelles open to their vessels of war. They are then able to use force, or the show of force, to further their interests there. But when there is a fleet of importance based within the Black Sea and belonging to a Black Sea power,

it is to the interest of potential enemies to shut that fleet within the Black Sea and deny to it the free navigation of the Dardanelles. These powers are then willing to see the Straits closed to their own ships as well, in order to gain the advantage that freedom from the menace of the Black Sea fleets gives them. The Russian Black Sea fleet could not participate in the Russo-Japanese War because the Straits were closed. This was a well nigh intolerable position for Russia to be placed in, a position which she believed was one of the causes of her defeat. If the Straits are left open, unfortified, and freedom of navigation for vessels of war is assured at all times, the control that fortifications formerly exercised is then shifted to control by ships of war, and, in time of war, the vessels that enter or leave the Black Sea will do so by the consent of the superior naval power in that vicinity. The destruction of the fortifications of the Dardanelles, the opening of the Straits to complete freedom of navigation, will at present inevitably shift the potential control of the Straits from Turkey to Great Britain. At present this freedom of passage is in harmony with British aims, because they desire to penetrate the Black Sea region; but should the time come when Russia rises again to be a great naval power, the policy of Great Britain will change to that which it formerly was, and she will demand that the Straits be closed that Russia may not threaten her route to India and the Far East via the Suez Canal. The decisions at Constantinople are likely to ebb and flow with the fluctuations in power of the interested states.

You see from time to time mention in the press of ideas and inventions that are not made use of by the Navy. It is right that our every shortcoming should be exposed. The public is the great inspector of Government activities. It should know what we do and should speak its mind. The mails bring hundreds of suggestions each day in time of war, and in time of peace the stream flows on. The navy takes special pains to ensure that no really good idea gets away. There are numerous talented officers who give special attention to outside suggestions. I will cite but two instances.

Some years ago an American inventor came forward with a high explosive shell that was designed to do far greater injury to an armored ship than the standard types of armor piercing shell. He received a good deal of legislative aid. Exhaustive ex-

periments were made at government expense. The naval report on the shell was adverse. The responsible officers who refused to use the invention were set down as blind to progress, reactionary, and all that, but this attack did not change their decision; the American Navy continued to be supplied with the best type of armor piercing shell. Not so in a certain foreign navy where the inventor's ideas were adopted. The battle of Jutland witnessed the great trial and final failure of the inventor's theory. A great fleet failed in its mission partly through ineffective ammunition. Not only was the ammunition ineffective, but its replacement encroached on facilities already over-taxed, involving an anxious period of delay in a great war. The names of the alleged reactionary American naval officers were well known in the Press at the time, but years later when the soundness of their judgment was confirmed, no one outside the navy thought of or commended them for the service they had rendered.

One day in the early part of the war, Mr. Ralph C. Brown of Salem, Mass., presented himself at the Navy Department—the Bureau of Ordnance—with a new electrical idea for firing submerged guns. The gun was not practicable, but the principle by which it was to be fired, if applied to a mine, *was* practicable; for it would make a mine that would act even if a ship never touched it but simply came within a certain vertical distance of it. The officer who listened to him, Commander S. P. Fullinwider, U. S. N., let his imagination travel across to the North Sea and visualize a mine barrage from Scotland to Norway that would shut the enemy submarines from the ocean. That mine and that vision became the great reality of the North Sea mine barrage. Don't think that the transition to reality was easy. Months of intense effort on the part of the inventor and of the best technical brains available were necessary to produce the mine that finally was planted in that barrage. A fleet of ships had to be bought and remodelled. Thousands of men trained—an American naval station built in Scotland. You know the result.

I was in London at the time the barrage was begun. It was a favorite remark of certain officers at the British Admiralty that the American barrage was a bluff—that it really would not be effective. Our first five thousand mines were laid over near the Norwegian coast. A day or two afterward three German sub-

marines stood out of the Skager Rak and through the mine field. Next morning wireless reports told of one damaged submarine returning to Kiel, of one that had disappeared after a great explosion, and of a third that was on her way out to sea. After that I did not hear so much about the barrage being a bluff.

We owe a great deal to thinkers and doers outside the service, but when the service opinion is adverse to any specific proposal, I think the public can serve their interests best by the presumption that a life-time devotion to the technical questions of national defense, joined to a responsibility that stays with us through all our life time, qualifies the service to speak with authority on all professional questions.

One of the finest ways of clarifying strategic ideas is by having always in mind a clear conception of what we are really trying to accomplish. When America undertook the great mine barrage across the North Sea, the object to be accomplished was to bar the exit of all German submarines from the North Sea, north about. American naval officers never lost sight of that mission. Their persistent insistence upon it led to some very warm friendly differences with the British. We wanted an unbroken barrage from Norway to Scotland and from the surface of the sea to a depth of three hundred feet—the limit of safe navigation for submarines. The British wanted that barrage to have two surface channels, each forty miles wide for the use of the Grand Fleet and for convoys. One of those channels was to be next to the Norwegian Coast and one next to the Coast of Scotland. There were to be deep mines in those channels, but the surface was to be safe for the passage of vessels. Their plan looked like a half measure to us, and we felt that it would not be long before the enemy knew where the channels were and used them, especially at night. We went ahead laying the barrage in parts where both plans were alike; and by the tenacity of the Americans, and the open-mindedness of the British, the American plan prevailed early enough to cause no delay in its execution.

Still having in mind the necessity for slamming the door in the face of the German and Austrian submarines, we planned to close the exit from the Adriatic Sea from which enemy submarines were operating. It so happened that there was but one place in that area where a thoroughly effective mine barrage could be laid.

The War Plans Section of Admiral Sims' staff knew that this particular place was not acceptable to some of the Allies. The problem was, how to ensure that the accepted plan would place the barrage in that particular place. The Planning Section first drew up a set of specifications for mine barrages in general. These were based on unimpeachable principles. The specifications were submitted formally to the Allied Naval Council, together with the general proposition of an Adriatic barrage. Both were accepted without debate. The whole question, together with the adopted papers, was then referred to a Board of Admirals at Malta, who adopted a plan exactly like that originally proposed by Admiral Sims' staff. The coincidence arose from the fact that the specifications would not admit of any other plan. There is strategy in negotiation as well as in execution. An incident at this Malta conference of admirals is worth mentioning. The Italian admiral said of the proposed barrage—"This is a big undertaking, but our mine force can, because of its excellent training, lay 250 mines a day." Admiral Strauss, the American admiral, replied, "The mine force under my command lays five thousand, five hundred mines in four hours." The Italian admiral reached for his cocked hat, rose and laying his hat and hand on his breast bowed profoundly and sat down. The business of the day proceeded.

A clear vision of the essential requirements of the time led to a decision regarding our transports during the war. There was fear of an attempt by the Germans to raid the transports at sea with battle cruisers. What should be done in case of an attempted raid? More troops were then a vital necessity in France. There were two plans submitted. One plan provided that transports at sea should seek the nearest harbor for refuge. The other called for no interruption in the movement across the Atlantic, but only such changes of course by the convoys at sea as necessary to lead them through the safest zones. The latter plan was adopted, but the hazard of it was reduced by escorting transports with battleships. Sound strategy required the continuous flow of troops, no matter what extra effort was involved, and this could never be realized if we interrupted that flow every time there was a rumor of a raid. I am reminded of what a grizzled old tug captain—a boatswain of the Navy, said when asked why he had

not turned on the "cease firing" signal lights when he saw target practice shells striking the water on both sides of him. "I've been towing targets for years," he said, "and I don't think there would be much night target practice if I turned on the 'cease firing' signal every time a target shell seemed to have been aimed at my tug instead of the target." The strategy of war is something that has to proceed to a conclusion, and it always involves the element of chance. The strategy of peace should be to weigh, to build and to guard against mischance.

There is strategy in small affairs as well as great. Captain Philip Williams, now commanding the battleship *Tennessee,* during the war commanded the cruiser *Chester,* that was engaged in protecting huge convoys of freighters between Gibraltar and Plymouth, England. These were very slow vessels, and always one or more were disposed to straggle. Reiterated orders seemed to have no effect, so one day the *Chester* ran down to a straggler about two miles astern that said she could not keep up. Captain Williams dropped a smoke box astern of her, where she could not see him do it, then ran alongside and shouted, "submarine" through the megaphone and returned immediately to the convoy full speed. He told me the straggling vessel nearly beat him back to the convoy, and that never again that voyage did she fall astern or fail to be most attentive to orders. Her skipper believes to this day that the little smoke showing astern of him, on the surface of the water, was a submarine which he outdistanced on that famous occasion.

In the days of wooden ships, one of ours on the China Station received orders to proceed to a certain Chinese port, to demand redress from the local Governor for the harsh treatment of some American missionaries. A small indemnity was to be collected, and a salute to the American flag required. The ship arrived at the port, and the Captain delivered (with due ceremony) the demands of our Government. He told the Governor that he would expect a prompt and favorable reply. Next morning, having received no reply, the Captain sent his aide to the Governor to say that he had now carried out the first part of his orders, and that should the Governor fail to comply with his demands before twelve o'clock noon of that day, he would be under the painful necessity of executing the second part of his orders.

The aide had no more than returned to the ship after delivering his message when the American flag was run up on shore near the Governor's palace and saluted with twenty-one guns. Immediately afterward, the Governor's barge, with its crew pulling the well-known official goose-step stroke, came alongside with the Governor and the indemnity. Needless to say, the Governor was well received, and his visit was the first of a pleasant exchange of courtesies that occupied the succeeding days. When the visit was over and the ship was sailing away, the Captain's aide ventured to inquire what the second part of the Captain's orders had been. The old man with a broad and satisfied grin pulled the orders out of his pocket and read: "Failing to obtain satisfaction within twenty-four hours of your arrival, you will quit the port and take no further action in the premises." Naval strategy is not confined to the management of fleets or the selection of naval bases.

I do not want to bring this paper to a close without exploding a popular theory regarding the navy. It has become trite to say that the nation's first line of defense is the navy, but it is not true. It is dangerously false. Diplomacy, statesmanship, is the first line of national defense. The bloodless victories won by statesmanship sometimes equal in historical importance the great decisions of war. They are won because of foresight and acumen in appraising the powers of the weapons in reserve, and in providing for their efficient use in the future. The statesman understands that, even in time of profound peace, the readiness of his country for war is the most potent support he has in accomplishing his aims by diplomacy. He realizes further that he advances his own aims best by a skilful and constant strengthening, in a military and naval sense, of the strategic situation of his country. He must be statesman and strategist too. It is only when statesmanship fails, that the navy moves into the front line. When victory comes the navy and army fall back, and the statesman carries on.

At the time work was stopped on our new capital ships, it was estimated that it would have cost three hundred fifteen million dollars to complete them. A survey of our treaty navy, as compared with foreign navies, leads to the unavoidable conclusion that if foreign programs in cruisers and submarines are carried to com-

pletion, America will be unable to attain her treaty ratios in fighting ships for less than three hundred millions of dollars. We have to choose between such an expenditure, and a naval position of marked inferiority. I am sure the navy would be glad to see the problem at least partly solved by a reduction in foreign cruiser and submarine tonnage.

After the treaty for Limitation of Armaments was signed, it fell to the General Board to prepare a naval policy for the United States to fit the new conditions brought about by the treaty. The General Board had the problem under exclusive consideration for three months, holding more extensive hearings on this subject than it has ever held before on any problem. When its work was completed, the policy was written on a single, large sheet of paper and comprehended every phase of naval activity. I think I cannot do better than to make some brief quotations from that policy.

It is naval policy "to create, maintain and operate a navy second to none, in conformity with the ratios for capital ships established by the treaty for Limitation of Naval Armaments."

It is naval policy "to make strength of the navy for battle of primary importance."

It is naval policy "to cultivate friendly and sympathetic relations with the whole world by foreign cruises."

It is naval policy "to support in every possible way American interests, especially the expansion and development of American foreign commerce."

It is naval policy "to co-operate fully and loyally with all departments of the Government."

It is naval policy "to make every effort for economy in expenditures while holding efficiency paramount."

It is naval policy "to have always in mind that a system of outlying naval and commercial bases, suitably distributed, developed and defended, is one of the most important elements of national strength."

These are all strategic steps toward the goal of national welfare. After the Secretary of the Navy had given the policy prolonged study, he approved it and added in his own handwriting at the bottom of the sheet, a publicity policy, which reads as follows:

To give to the public all information not incompatible with military secrecy.

That publicity policy is one of the reasons why I have been able to talk so frankly to you here. I would not be fully frank if I failed to add to these remarks my fear that America is being swept by an emotional generosity and trust in international affairs, that is not consistent with our ultimate well being. I believe that idealism, pitted against commercialism and self-seeking, is bound to lose; and that the correct strategy of the present is for us to be on our guard.

"KEEP OUR NAVY STRONG[1]"

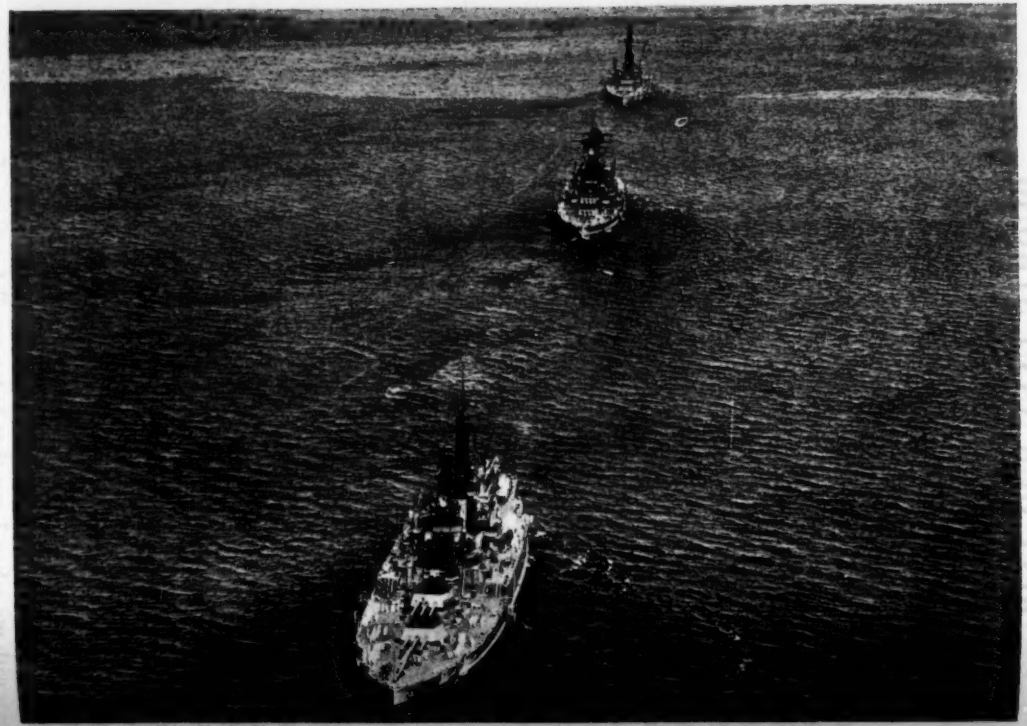
By Captain Luke McNamee, U. S. Navy
Director of Naval Intelligence

When I was informed by Colonel Roosevelt, Assistant Secretary of the Navy, that I was to be invited to go to Boston and speak to this distinguished audience I must confess to experiencing a feeling of dismay such as I have rarely felt in the presence of much graver danger. This feeling was prompted not so much by my sense of inexperience in public speaking, or doubt of your kindly forbearance, as by the thought that while this would be a wonderful opportunity to present the case for the Navy to an audience whose influence might in the future prove a factor in determining the course of our naval policy, my failure to enlist your interest in the problems of the Navy would be a matter of abiding regret.

The reasons why you should stand firmly in support of the Navy are to me so obvious that I hope no eloquence of mine will be necessary to convince you, once you are in possession of the facts.

What I have to say to you is wholly from the national standpoint. That is the standpoint of the Navy. The Navy is not concerned with party politics. It exists only as an arm of the executive authority whether that authority be Democratic or Republican. We are not interested in the political rivalries of states, or districts, or counties, or municipalities. Of all those things the average voter knows a great deal more than I do. But when our average voter speaks of America as a nation and considers the rights, duties and interests of America as one of a family of nations, a family with many conflicting and discordant interests, his ignorance is apt to be alarming. I think you will agree with me when I say that but a small fraction of our citizens

[1] Speech delivered January 22, 1923, before the Women's Republican Club of Massachusetts.



Official Photograph, U. S. Navy

BATTLESHIP DIVISION COMES TO ANCHOR IN THE BAY OF PANAMA

are qualified to cast an intelligent vote, on any international question, with any clear understanding of the issues involved. I fear that only a few hundred thousand out of our twenty odd million of voters are sufficiently informed to cast a vote that would conserve our national interests and yet the safety of our country must necessarily rest on the knowledge and intelligence of our electorate.

If popular government is not to fail, our voters cannot take up too soon the earnest study of their duties and responsibilities as citizens of America. Our country has become so vast and so diversified in its interests that those voters capable of taking a broad national view of our necessities are in danger of sharing the fate of the dodo. Yet statesmen can accomplish little without your support.

John J. Ingalls once defined a statesman as a successful politician who is dead. We need support for those good men in office who are earnestly striving to be statesmen while yet alive.

I know of no nobler mission for our newly enfranchised women than to start a crusade for better national citizenship, and I know of no better center for such a crusade than this splendid old city of Boston that has cradled so many of our national ideals.

But I am to speak to you of the Navy and surely the Navy's interests are the country's interests.

One of the principal reasons for the adoption of our Constitution was to provide for the common defense. Our fathers decided in their wisdom to provide one Army and one Navy to defend all the people in common, so the Navy belongs to the people as a whole. Each of you is a stockholder in this great organization. Its property is valued at over three billions of dollars. It is not only your right but your duty to share in its management.

Now why should a Navy exist at all? If we go back to first principles, in order to live and prosper we must have law and order. To have law and order, society must be organized and live under some system. As the world is still inhabited by all kinds of people, good, bad, and indifferent, and not as yet by God's white angels, it is necessary that certain physical sanctions be provided to insure obedience to the law. Even the most primitive rural community has in addition to its law book and its justice of the peace, a constable. Now just as in our domestic

relations we must have our federal, state, and municipal police, so in our international relations there must be provided an Army and Navy as a physical sanction of our international laws, conventions, treaties, and policies. Any other conclusion would involve an absurdity. For if, in dealing with each other in our most highly civilized communities we must still rely upon force to guarantee us our just rights, how can we expect to do without force and yet obtain justice from strangers whose interests are not our interests, and who quite naturally are seeking their own advantage? More than one statesman has said "our foreign policy is as strong as the Navy and no stronger."

I will give you an example of how the Navy is used to support our policies. In 1902 Germany made certain demands on Venezuela, which she proposed to enforce by seizing and occupying the ports of that country. The proposal of arbitration by President Roosevelt was rejected by the Kaiser, whereupon Admiral Dewey was placed in command of the fleet and Germany was informed that if any attempt was made at seizure of Venezuelan territory the American Fleet would be instructed to prevent it. The Kaiser saw the point and promptly backed down. His attempt to make the Monroe Doctrine a "scrap of paper" failed because our Navy at that time was stronger than Germany's.

You have all heard people say "What need have we of a Navy? Our country could never be successfully invaded." How foolish! It is not necessary to invade this country to cause war. If one square foot of our territory was taken from us by force, even in the far off Philippines, Guam, or Samoa, we would have to go and get it back if it cost the last dollar and the last drop of blood in the country. If that is not the spirit of America, I would blush to be called an American citizen.

A great British statesman said the other day that Europe might soon be involved again in another great war, and that America would undoubtedly be drawn into it. There is no doubt that we would be drawn into it if some country "fighting for its existence" should commence sinking American cargoes and passengers. There is little danger of such an eventuality as long as we are strong, but we must not forget that the German General Staff in 1917 decided that in our state of unpreparedness they could proceed to sink our ships with impunity, because the war would be

decided before we could get ready to intervene. It is true that they guessed wrong, but it was only thanks to the allies that we were able to take a year and a half off in which to prepare our Army and Navy for war. Our great loss of life and the terrible debt which we as well as the allies incurred, due to this delay, can be directly charged to pacifism and unpreparedness.

You are well aware of what the Navy does in time of war. Our school histories give much space to the spectacular battles and heroes that appeal to the national pride. But little is said of the work of the Navy in time of peace. It is not spectacular; it makes little appeal to the imagination, but the sun never sets upon its activities. In every quarter of the globe in all the seven seas, it is standing guard over your interests.

One of its first missions after we secured our freedom was to destroy piracy in the Mediterranean, that we need no longer pay tribute to the Barbary corsairs to let our wheat enter the ports of Europe. Later our Commodore, proceeding to Turkey, negotiated treaties that opened up the Near East to our trade.

In 1842 our naval commander in Asiatic waters secured from the viceroy a treaty which opened to our trade the five great ports of China.

In 1854 Commodore Perry, by the most brilliant diplomacy, opened Japan to the commerce of the world.

It is a sad commentary on human nature to note what an emphasis a battleship adds to a diplomatic note.

Not a year passes but witnesses the peaceful intervention of our Navy in some port of the world to open up new avenues of trade, to protect our commerce or our interests from irreparable damage. We export annually over seven billion dollars of surplus products that we cannot ourselves consume, and must market abroad if we are to maintain our standards of living and continue our prosperity. Three billions of those products come from the farm, and ultimately find their way to the uttermost parts of the earth. Without a Navy the protection of this gigantic trade, by which we live, would be at the mercy of our competitors.

This trade is the life blood of the nation; it is reckoned in billions. Is it any wonder that the Navy that gives it protection should cost money?

We have a foreign fruit trade of $50,000,000 in imports, largely built up around the old Boston Fruit Company. Without a Special Service Squadron in West Indian and Central American waters, where the bulk of this fruit comes from, a few revolutions would wreck this business, as well as a business of $500,000,000 annually in sugar and petroleum.

Our patrols 2,000 miles up the Yangtse Kiang protect from robbery and piracy an export trade in the neighborhood of a hundred millions annually.

Statisticians tell us that we are rapidly exhausting our resources of raw material, that our population is increasing at such a rate that the time is not far distant when we will no longer be self-sustaining and must import our food as well as our materials for manufacture. We are rapidly becoming industrialized. We have almost ceased to export meat and are shipping yearly less wheat and cotton. The time is approaching when our prosperity will depend largely on our ability to compete in the international market with manufactured goods. All history shows that war is but an ultimate form of economic competition. If we are to compete on equal terms, we must have a Navy able to protect our trade. "He who controls the sea controls the world." That is Mahan's dictum. We do not wish to control the sea, but if tradition means anything we are willing to fight for freedom of that sea from the control of anyone.

Sea power has ultimately decided every great war. The World War was no exception. If the Allies had not kept control of the sea, not a man or a pound of food or war munitions could have safely entered a French port. By her sea power England gathered her armies from all over the world, from Australia, New Zealand, India, and Canada. France brought a million and more from her African colonies. America, with the aid of allied shipping, poured her millions of troops into France in time to save the day; but in addition, the open sea permitted us to send the supplies and war materials that saved the allies before we entered the war. Had Germany destroyed the British Fleet at Jutland, the war would have been decided then and there; for without control of the sea neither the British Empire or America could have helped.

Sea power does not consist of a Navy alone. It must be supplemented by a merchant marine and by adequate bases from

which to operate. A modern fleet that is not tied to its base requires an immense train of merchant ships to supply fuel, ammunition, provisions, repair facilities, hospitals, and dozen of other diverse functions. In time of war this service can with certainty be obtained only from one's own flag. The Navy needs the merchant marine and the merchant marine the Navy and the security and prosperity of the country demand both.

Bases are needed to dock and fuel and repair our ships and supply both Navy and merchant ships with their needs in peace and war. Great Britain has great bases all over the world while we have but a few.

If I have shown you why we need a Navy, you will be interested in knowing what should be the size of that Navy. The recent Arms Conference settled the ratio of strength that should exist between the great naval powers, as equality between Great Britain and the United States. The proportion is known as the 5-5-3 ratio, which gives Japan three-fifths of our strength. Unfortunately agreement was reached only in regard to battleships and airplane carriers. Nevertheless the principle of a fixed ratio of relative strength stands approved by the powers and the Secretary of the Navy has formally announced our naval policy to be a Navy second to none and in accordance in all respects with the 5-5-3 ratio. We are deficient in personnel as well as in cruisers, certain types of submarines and aircraft carriers. In addition, our battleships require modernization. There is nothing in the treaty that prevents our having a Navy in entire accordance with our policy, except the willingness of the people to build and maintain it. It is foolish to be satisfied with a Navy nearly good enough. No argument can be advanced to support such a position. Germany had a big Navy—a Navy *nearly* big enough. What happened? Her ships were driven from the sea, locked up in port and she couldn't get a pound of food or supplies in or out of the country. The hundreds of millions that are spent on a Navy are really wasted if the Navy is not capable of defending the country. A weak Navy is only preparedness for defeat—a defeat that would mean humiliation and disaster.

Pacifists and little Navy men are filling the press with statements that the Navy is opposed to another conference that would establish the 5-5-3 ratio for all classes of vessels. I wish to state

most emphatically that the Navy stood squarely behind the Limitation of Arms Treaty so far as it applied to vessels of the Navy, and that the Navy is now anxious to see that ratio applied to every class and type of ship, to officers and men, and to every branch of naval activity.

The trouble is that the pacifists do not really want limitation of armaments by international agreement. What they advocate with "Alice in Wonderland" reasoning is the principle of disarmament by example. They forget that our past adventures in helplessness have never been followed by anyone, and that our unpreparedness for war caused the terrible loss of life and the huge debt we have now accumulated, both directly chargeable to our failure to maintain an armed force adequate to the protection of the country. Every generation in our history has seen kindled the fires of war, but we have stupidly adhered to the policy of delaying the construction of a fire engine until after the fire has started.

I wish to say a word about false propaganda against the Army and Navy. I am repeating no idle rumor when I tell you that much of this propaganda has a sinister foreign source—its object the overthrow of our government and the ultimate dictatorship of the proletariat. A logical step in the procedure of these foreign gentry is the elimination of the forces of law and order—the Army and Navy. This can best be accomplished through the assistance of our own good people who wish to abolish armies and navies, proclaim "No More War" and then, I suppose, place their heads deep in the sand.

I congratulate the propaganda foxes on their ability to utilize our foolishness but I have no fear of their success, once the people become aware of the object they have in view.

A popular fallacy that is heard on all sides is the excessive cost of the Navy and the terrible burden of taxation for armaments. The total tax we paid in 1922 for all purposes was about $90 per capita. Out of that only $2.76 went to the Navy. I know it is very painful to have to pay out $2.76 taxes, but we don't mind how much we spend on having a good time. The newspapers say we spent five billion dollars for Christmas presents. That is a billion dollars more than the whole annual cost of the federal government. We spent about four times the cost of the Navy for tobacco alone. Before prohibition went into effect we drank

nearly twenty gallons of liquor a year for each man, woman and child. I don't know what that cost, but from what my friends tell me, though we may not be drinking as much now, what we do drink costs fully as much as that twenty gallons did; and that would be enough to pay for all the navies in the world.

Another thing we hear is that armaments induce war. I hold no brief for any other country, but for the United States I know that the lack of an Army and Navy has never made our people hesitate to declare war whenever they felt like it. The Army and Navy have nothing to say about declaring war, and I never saw one of them that wanted it. The extent or quality of armament seems at most to have little to do with war. Some of the bloodiest battles of history are those recorded in the Bible, where men fought hand to hand with swords and spears. If we didn't have a single naval vessel we would have to fight with merchant ships, as we did in the Revolution. So would every other country, and the nation with the biggest merchant marine would rule the sea.

Many think that armies and navies exist for the sole purpose of destruction. As a matter of fact our Army and Navy have been the greatest constructive forces in the country. Wherever they go they better local conditions, establish schools, and improve the public health. The Panama Canal, the greatest engineering triumph of the age, was made possible by our Army, and they converted a pest hole into one of the healthiest parts of the world. The peoples of Cuba, Porto Rico, Haiti, San Domingo, the Virgin Islands, the Philippines, Guam, and Samoa have been absolutely regenerated by the Army and the Navy. The Navy has saved ten times as many lives as it has ever taken.

The development of all the intricate machinery and inventions that go into our ships has had more to do with the industrial development of the country than any other agency. The steel industry was literally built up on Navy specifications, Navy laboratory experiments and Navy contracts. The Navy has returned to the country, many times over, every dollar spent on it.

I am for any constructive measure that will bring peace to the world. But peace will never be permanent till we change human nature. Human nature can be changed only by the churches and the schools. The churches and schools cannot function without

law and order, and there can be no law and order without an efficient Army and Navy.

We all pray for peace and live in the hope of the millenium, but until we are assured that peace will remain with us, common prudence requires that we take reasonable measures for our defense. We are a nation potentially powerful on account of our resources, but the prestige that we will enjoy beyond our own borders will be measured by the visible evidence of our strength.

I sat in Paris in the Peace Conference, and I saw the four strongest military powers write a treaty while all the weak powers waited outside to sign on the dotted line when that treaty was completed. I sat in Washington during the Arms Conference, and saw the great naval powers of the world gladly gather there to agree with us that naval armaments should be limited, and that other beneficent treaties should be signed. And I thought, why is it that Switzerland, with complete naval disarmament, or one of a dozen minor powers, filled with altruism but lacking naval strength, did not call this conference? Did the fact that we were powerful on the sea, and were building the greatest Navy in the world, have something to do with it? Possibly. Would those great powers have ignored a call for such a conference by China, a country that is helpless to resist aggression? Possibly. On the whole, have we not learned in five thousand years of history that when statesmen sit down around the council board, the one with the greatest background of armed strength receives the most respectful hearing? I think so.

If we are to retain our prestige; if we are to keep our place as one of the great custodians of civilization; if we are to preserve the heritage of our freedom and our institutions and transmit that heritage unsullied to our descendants; if we are to guard our families and our firesides; let us keep in our hands the power that God has given us, and renounce once and forever the sophistries of the Delilahs of pacifism, that would shear the Navy of its strength.

JAPAN: A SEQUEL TO THE WASHINGTON CONFERENCE[1]

By Hector C. Bywater

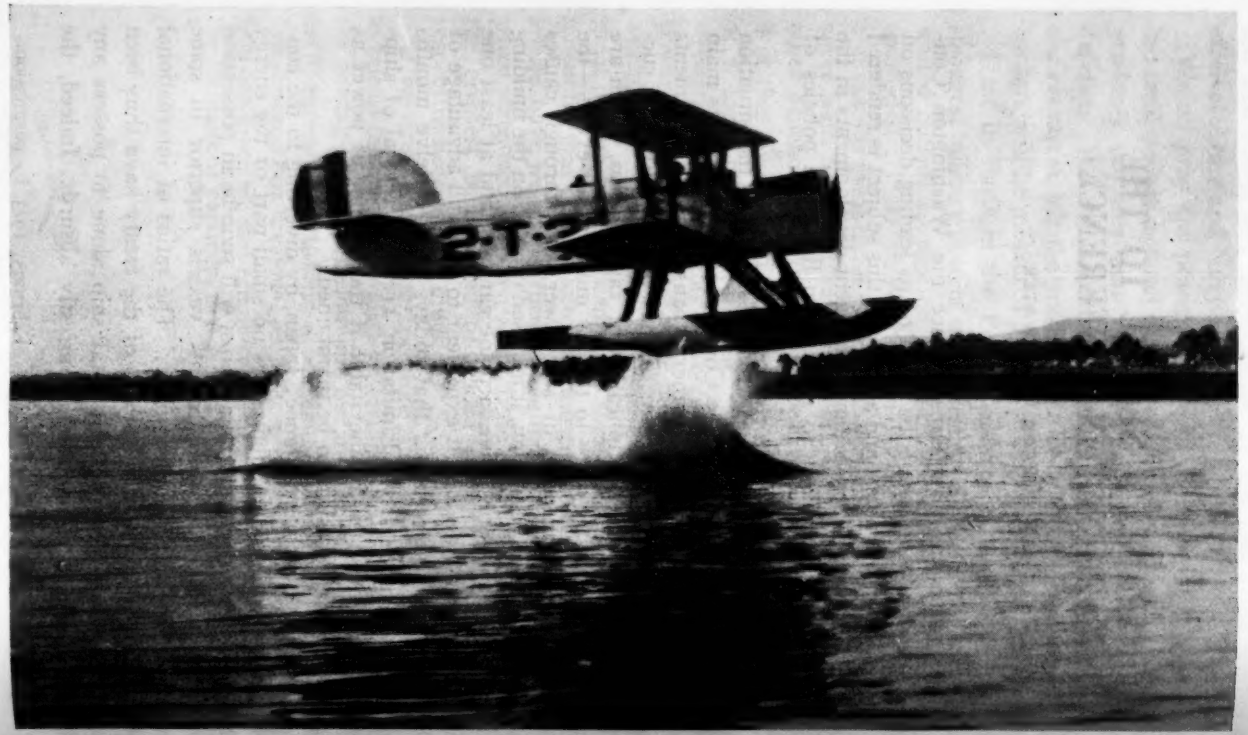
I

Sufficient time has now elapsed since the Washington Conference to enable us to gauge the effect of its leading decisions on the naval position of Japan; and a study of this subject is rendered the more opportune in consequence of recent developments in the Far East which seem likely to react upon the naval policies of other powers.

The initial fact that emerges from a survey of the situation today is the patent failure of the Conference to achieve its main purpose, namely, to check the further expansion of sea armaments in any and every shape or form. It has undoubtedly been successful in arresting the multiplication of capital ships, which are at once the most costly and—to the lay mind, at all events—the most aggressive instruments of sea power; but, through causes too notorious to need repetition, it imposed no veto on the building of other combatant types, save airplane carriers, and at least one signatory party has deemed it expedient to take full advantage of this omission. The result is that today, barely twelve months after the acceptance of the Limitation Treaty, a revival of shipbuilding competition seems inevitable if the balance of power as regulated by that treaty is to be maintained.

To state the case in a sentence: Japan, by diverting to the construction of cruisers and submarines no small part of the energy she formerly expended on capital ships, will soon be in possession of a fleet of "auxiliary combatant" vessels superior in some respects to that of any other power. The ratios of international strength formulated by the authors of the treaty have thus been upset, unless we assume the capital ship alone to possess any fighting value—an assumption manifestly absurd. Indeed, the

[1] Reprinted from the *Atlantic Monthly*, February, 1923, by permission.



NAVY TORPEDO PLANE MAKING PRACTICE FLIGHT AT SAN DIEGO, CAL.
This aircraft is that of a torpedo squadron which has just been organized

relative importance of auxiliary craft has increased very considerably as the result of limiting the number of heavy ships. Therefore, when we find that Japan during the last five years has built or ordered no less than twenty-three light cruisers, as against a collective total of sixteen for Great Britain and the United States, it would be futile to pretend that the Washington agreement has either stabilized naval strength on anything like a comprehensive basis, or relieved the naval authorities of Britain and America of all anxiety as to the future.

So far is this from being the case that at the moment of writing the United States Navy Department is understood to have in preparation a large program of auxiliary construction; and it seems only a question of time before the British Government will be compelled to take similar measures.

Japan, to do her justice, has been perfectly frank with regard to her post-Conference naval policy. Her intentions have been advertised to the world, even if their full significance has not been unduly stressed. She justifies her formidable program of auxiliary tonnage on two grounds: first, that it is necessary in order to save the national shipbuilding and kindred industries from the ruin that would have overtaken them had all naval construction come to a standstill; secondly, that the additional cruisers and submarines are really needed to compensate for the reduced strength of the battle fleet.

As regards the first argument, it is no doubt true that the sudden stoppage of all shipbuilding for the navy would have been a most serious blow, not merely to the trades directly concerned, but to the whole economic system of the country.

A few facts and figures bearing on this point will not be out of place. Under the impetus of conditions set up by the World War, the industries of Japan flourished amazingly for a few years, and shipbuilding, in particular, was developed to a remarkable extent. In 1914 the number of yards producing sea-going ships did not exceed six; by 1918 there were fifty-seven such establishments in operation. The slump of 1920 drove more than half these newer yards out of business, and in August of last year only twenty-six remained.

At the close of the war, when orders for mercantile tonnage began to fall off and at length almost entirely ceased to come in,

NAVY TORPEDO PLANE MAKING PRACTICE FLIGHT AT SAN DIEGO, CAL.

the shipyards were forced to depend for their existence largely on Admiralty contracts. From their point of view the big naval program of 1920 was a veritable godsend. Irrespective of smaller vessels, it provided for the construction, within eight years, of a fleet of sixteen capital ships, with an average displacement of approximately 42,000 tons, and of this number at least one-half were to have been built in private yards. Under the Washington agreement no less than fourteen of these vessels were cancelled, including six that were already building. When this decision became known in Japan, there was an outcry from the shipbuilders, who saw themselves faced with ruin, and even louder protests came from the shipyard workers, who form one of the best-organized branches of Japanese labor.

According to official statistics, there were in Japan nine large private yards that were generally engaged in warship construction, employing between them 96,000 hands, and four naval dockyards, employing some 61,000 hands. Consequently, the number of workers who were interested in the building of warships was 157,000, of whom, it was estimated, fifty per cent would be thrown out of employment through the cancelling of battleship orders alone. Had auxiliary ships been included in the limitation scheme, the percentage of men rendered workless would have been as high as seventy-five.

Even as it was, organized labor became dangerously restive. Mass meetings of shipyard employees were held, and violent speeches made against the Government for having "betrayed" the workers. Agitators who had previously complained most bitterly of the burden of armaments were now foremost in opposing a reduction of that burden.

It has been hinted in some quarters that this popular clamor against the suspension of warship construction was by no means distasteful to the Government, who saw in it an excellent excuse for continuing the development of the navy on as large a scale as was possible without transgressing the letter of the treaty. Be that as it may, generous concessions were granted with a promptitude that was rather surprising, in view of the tendency of officialdom in Japan to resist any form of dictation by the masses.

Less than a month after the Washington Conference dispersed, it was announced at Tokyo that an agreement had been come to between the Government and the shipbuilders, whereby the latter would be provided with other work in lieu of the countermanded battleships, and the wholesale discharge of shipyard workers would thus be avoided. The scheme was to retain practically intact that part of the 1920 program which related to auxiliary ships, and to advance the dates of laying down these vessels. For example, contracts for cruisers which it had originally been intended to begin in 1923, 1924, and 1925 respectively were to be antedated twelve months, so that the normal building programs of 1922, 1923, and 1924 would in each case be increased to that extent. In other words, twice as many auxiliary ships were to be laid down each year as the original program had legislated for. This plan embraced destroyers, submarines, and supply ships, in addition to cruisers.

In allotting the new contracts, special regard was had to the claims of the shipyards which would have benefited most under the pre-Conference battleship program, orders for new light cruisers going to those state and private yards which had been promised, or were already at work upon battleships and battle cruisers. The largest cruisers will therefore be constructed at the Imperial dockyards of Kure and Yokosuka, and the private establishments of Kawasaki and Mitsubishi, and smaller units of this type by the Sasebo arsenal and Uraga Dock Company. At the same time contracts for destroyers, submarines, and fleet-supply ships are being distributed among the yards named and also among other establishments which suffered through the recision of the pre-Conference program. Furthermore, extra work has been provided for the state dockyards by assigning them the dismantling of condemned ships.

By these measures the crisis in the shipbuilding industry has been largely overcome, all the principal yards throughout the country have a fair amount of work in hand, and it has been necessary to discharge only a comparatively small number of workers.

On the other hand, the cost of all this auxiliary tonnage will be heavy enough to wipe out a great part of the sum saved by scrapping the capital-ship program, and the net saving effected in

new naval construction will consequently be much less than the taxpayers had anticipated. There are not wanting those in Japan who censure the Government for adopting this policy of "robbing Peter to pay Paul." It would, they contend, have been better to encourage the shipyards to develop other branches of activity than naval construction, such as the manufacture of locomotives and other railroad and street-car material, iron and steelwork parts for bridges and structures, industrial power plants, automobiles, and the like, as has been done by European armament firms since the war.

As it is, the critics declare, the wealth of the nation is being dissipated on fighting ships which apparently have been ordered simply to keep the shipyards in operation, and not because they are absolutely essential for defense purposes.

Another and still graver objection urged against the Government's policy is that this sudden expansion of the auxiliary combatant fleet may evoke suspicion abroad as to Japan's bona fides in respect to disarmament, and lead other powers to strengthen their fleets in the same way, thus ushering in a new era of naval rivalry and mutual distrust. That these apprehensions are well-founded has already been made clear by the reported action of the American naval authorities in drawing up a new program to counterbalance Japan's growing strength in cruising ships and submarines.

Figures showing the actual reduction that has been effected in Japan's naval expenditure by the limitation scheme are not yet available, but the gross amount appears to be in the neighborhood of 100,000,000 yen.

In 1920, the navy budget amounted to 320,000,000 yen, or nearly twice as much as it had been three years previously; and subsequent additions, due to the passing of the "eight-eight" program, brought the gross amount to nearly 500,000,000 yen. In the following year, another big increase was made, and, but for the limitation scheme, naval expenditure during the current year would have been not far short of 750,000,000 yen.

According to Tokyo press reports, the naval estimates submitted in July last provided for an ordinary expenditure of 120,000,000 yen and for an extraordinary outlay of 198,000,000 yen, showing decreases of 15,000,000 and 60,000,000 yen re-

spectively. On October 30, it was announced that the Finance Department had further reduced the navy estimates in the forthcoming budget by 30,000,000 yen, making a total reduction of over 100,000,000 yen, or approximately one-seventh of the amount that would have been spent on fleet armament this year had the "eight-eight" program remained in force.

This saving is accounted for almost entirely by the deletion of the capital ships and the abandonment of new docks and harbor works; only a very small percentage is due to reductions in personnel; and, as we have seen, the bill for auxiliary construction, so far from showing any cut, has been greatly increased. Some money will also be saved by giving up Port Arthur as a naval station and reducing the status of the Maizuru base.

As no precise figures of the cost of man-of-war construction are published in Japan, the expenditure that will be incurred by virtually doubling the auxiliary building program over a term of several years can be only roughly estimated. It is known, however, that the light cruisers of the *Kuma* class, 5,500 tons, have cost nearly five million dollars each; that the 7,500-ton ships of the *Yubari* class are priced at about seven and a half million dollars, and the new 10,000-ton ships, four in number, at not less than ten million dollars each. First-class destroyers, of which many are building and twenty-four projected, probably cost one and a half million dollars per boat; the medium submarines (900 tons) about the same; and the new large type (1,500 tons) three million dollars.

These prices are, if anything, underestimated, the cost of naval construction being abnormally high in Japan, despite the relative cheapness of labor. In any case, it is sufficiently obvious that a program which embraces not less than fifteen cruisers, ranging from 5,500 to 10,000 tons, forty destroyers, and fifty submarines, besides a great many supply and dépôt ships, will eventually cost an enormous sum of money.

II

It is patent to everyone that Japan is at present building more combatant tonnage than any other power; but what is not so generally appreciated is the fact that she is actually building more tonnage of this description than all the other powers combined.

Once more it must be emphasized that the so-called "Disarmament Treaty," while certainly bringing dreadnaught construction almost to a halt, has not only done nothing to limit the building of other man-of-war types, but has actually increased the number of these vessels in the case of Japan, and in all likelihood will eventually produce a corresponding expansion of the auxiliary ships of other navies.

It would occupy too much space to narrate in detail the various strategical reasons which the Japanese naval authorities have put forward, through the medium of the press, to justify the building of so many "auxiliary combatant ships"; but their arguments may be summarized as follows. The battle fleet has been so reduced under the limitation agreement that it will no longer be capable of fulfilling its proper function,—namely, going out to seek and engage an enemy fleet on the high seas,—but must henceforth be kept in reserve as a last card, only to be played if and when the enemy's preponderance has been reduced or destroyed by tactics of attrition. Therefore, to compensate for the loss of direct offensive power formerly vested in the battle fleet, Japan requires for her safety an unusually strong force of minor weapons of attack. She particularly needs an ample supply of swift ocean-keeping cruisers, to guard her own communications and harass those of an enemy, and also to prey upon his commerce, with the ulterior purpose of diverting part of his strength from the immediate war-zone.

For the same reasons, it is essential to have a large fleet of ocean-going submarines, which could be used alternatively for coast defense, for near and distant mine-laying expeditions, and for raiding commerce. The twofold problem confronting the Japanese Navy in war would be to maintain, as far as possible, the freedom of the ocean trade routes, and above all to guard communications with the Asiatic Continent, which would represent a vital and indispensable source of supply for foodstuffs and raw materials. In the absence of a really effective battle fleet,—effective, that is, in the sense of being able to engage the battle fleet of any potential enemy with reasonable prospects of success,—these strategic tasks can best be performed by cruisers and submarines.

As regards the loss of power resulting from the limitation of the battle fleet to ten ships, this, it is argued, is far more serious than might be inferred from superficial observation. Four of the ships are battle cruisers of a design which post-war progress has made obsolete, and which could not be placed in the line of battle without exposing them to grave risk of summary destruction. This brings the battle fleet proper down to six ships, none of which could possibly be replaced if lost or disabled.

Japan is, therefore, at a grave disadvantage as compared with Britain and the United States, since their infinitely greater resources would enable either of those powers to build new capital ships very rapidly in place of any that were lost in action.

Another important factor in the revised scheme of defense is the chain of outlying naval bases with which Japan has girdled herself during the past few years; and, apropos of this subject, there can be no harm now in disclosing certain facts of which the American public has, perhaps, hitherto remained in ignorance.

In the fall of 1920, the Japanese naval authorities, in co-operation with the General Staff, worked out a scheme for fortifying the principal islands that guard the approach to the coasts of Japan proper. This measure was intended to counteract the then impending development of Cavite and Guam as first-class bases for the American Pacific fleet.

In September, 1920, a committee of experts, headed by Captain Mori, of the Navy Department, visited all the islands in question, reporting that the points where strong fortifications and naval facilities were needed most urgently were the Bonin Islands, Amami-Oshima, and Yajima in the Loochoo group. This report having been approved by the Government, steps were immediately taken to carry the proposals into effect, and the work of fortification was put in hand early in 1921.

For reasons of finance it was intended to spread the appropriations over two, if not three, years, as in view of the slow progress being made with the American works at Cavite and Guam it was thought that the completion of the Japanese insular bases might safely be prolonged till the end of 1922. But in the spring of last year (1921), it became known at Tokyo that the United States Government was meditating an appeal to the powers to join in a conference for the reduction of naval armaments, and this news

decided the Japanese authorities to speed up the completion of their island forts, with the object of putting themselves in a favorable position strategically before the conference was summoned.

Consequently, from May 1921, the work at the Bonins went on with feverish energy. A large fleet of steamers was chartered to convey thither the thousands of laborers and the vast quantities of material needed to complete the task. So great was the demand for cement, that a temporary shortage of this material ensued. Throughout the summer and autumn, building operations went on night and day, and during this period the Bonin Islands were under a military administration which maintained a strict surveillance over visiting foreign ships. The Japanese press was also forbidden to publish any mention of what was in progress at the islands.

By December, the last of the batteries had been constructed and armed with heavy long-range guns, the barracks, munitions dépôts, aerodrome, and radio station had been constructed, and every navigable approach had been rendered impregnable.

Meanwhile the Washington Conference had assembled, and Admiral Baron Kato, of the Japanese delegation, had taken the first opportunity to inform his American colleagues that Japan regarded the abandonment of the Philippine and Guam fortifications as the condition precedent to negotiations for the reduction of her shipbuilding program. If the United States would agree to this, Japan, on her part, was prepared to suspend her own plans of fortifying her Pacific islands, and would at the same time co-operate most willingly in any practicable scheme for limiting her floating armaments.

Baron Kato did not add, however, that Japan, having been secretly engaged in fortifying her island bases for many months previously, had just completed the work, whereas scarcely any progress had been made in the development of the American stations at Cavite and Guam.

III

Whether the American naval experts were cognizant of the facts is a moot point, but it seems scarcely credible that they would have acquiesced in the status quo proposal for Pacific bases, had

they known that Japan was already in possession of a thoroughly equipped naval station at the Bonins. If they did know this, one is forced to conclude that their protests against the renunciation of the right to put the Western Islands in an adequate state of defense were overruled by the Washington Cabinet on political grounds.

In any case, Japan scored a signal triumph in securing the adoption of the status quo agreement with regard to Pacific fortifications. From her point of view, it was a strategical gain of the first magnitude, which more than compensated for the reduction of her battle fleet.

That the full significance of the clause has come to be appreciated by American naval students is clear from certain outspoken criticisms which have appeared recently. The Japanese Foreign Office, betraying a sense of humor for which few would have given it credit, issued the following communiqué on February 22 last:

"The Treaty on the limitation of naval armaments signed at Washington on February 6, 1922, comes into force upon its ratification by all contracting powers. With regard, however, to certain fortifications and naval bases of the British Empire, the United States, and Japan, in the region of the Pacific Ocean, it is provided in Article XIX of the Treaty that the status quo at the time of its signature shall be maintained. In conformity with the spirit of this provision, the Japanese Government have decided forthwith to discontinue the work on the fortifications in the Bonin Islands and Amami-Oshima, and further to maintain the existing condition of fortifications and naval bases in Formosa and the Pescadores. The necessary measures for giving effect to this decision have already been taken."

Napoleon's dictum that "war is an affair of positions" applies to the sea no less than to the land, and to a far greater degree than was the case a century ago. A fleet in those days was largely self-supporting, and could remain at sea for months at a time, independent of bases, because it had no fuel problem to contend with. But the conditions today are vastly different. The "reach" of a modern battle fleet can be measured with almost mathematical precision, governed as it is by the number and situation of the *points d'appui* available. In time of war, no fleet dare venture

to cruise for long in waters where ample facilities for refueling do not exist. If the ships of which it is composed have an average fuel-endurance of, say, 10,000 miles, that does not mean that they would be able to advance to a point 5,000 miles from home and still be sure of getting back in safety. For the maximum cruising-radius of a ship is always reckoned in terms of economical speed, and bears no relation to the distance that could be steamed if the engines were running at full power. Thus, a battleship able to cover 10,000 miles at a constant speed of 12 knots might be unable to travel more than 3,000 miles at her full speed of 21 knots—and in war-zone operations high-speed steaming is the rule rather than the exception. To cruise under a small head of steam in waters where enemy submarines might be encountered would be to risk destruction.

Now the only insular base in the Pacific where the American battle fleet could be sure of finding adequate supplies of fuel is Hawaii, and we are therefore justified in assuming that 2,000 miles represents the utmost distance to which the fleet could venture to the west or south of Hawaii in time of war; and even this would leave a dangerously narrow margin of fuel for emergencies. But if America fights in the Pacific at all, she will fight for definite objects, among which will be the protection, or—what is far more likely—the recovery, of the Philippines, and to gain these objects she must be prepared to undertake active naval operations in the immediate zone of war, namely, the Far Western Pacific.

How this is to be done without local base facilities is a problem which apparently defies solution. It is certain that in their present defenseless condition, now to be stereotyped by the treaty, both the Philippines and Guam would become Japanese in the first weeks of war.

This is fully realized and freely admitted by American strategists; but it is interesting, nevertheless, to have Japanese testimony on the point. In the *Dai Nihon*, of August 1921, a thoughtful monthly review published at Tokyo, the editor, Mr. Seijiro Kawashima, discussed the probable course of hostilities between his country and the United States, and affirmed that, should the outbreak of war find the main American naval force at Panama, San Francisco, or even at Hawaii, "it will be open for Japan to take the Philippines, indeed Guam. . . . Should the worst

happen, therefore, Japan would risk everything to destroy these two bases, and the ferocity with which she will fight may well be imagined." Clearly, therefore, the islands in question must be ruled out of any objective examination of the task that would confront the United States Navy in a war with Japan.

IV

It remains, then, to consider how far offensive operations in the Western Pacific would be feasible without bases. From Hawaii to the nearest Japanese coast is some 3,400 miles, making 6,800 miles for the round voyage, which would be well within the cruising capacity of modern battleships *at economical speed.*

But, as was emphasized above, ships steaming at low speed in an area frequented by hostile submarines would be in continual danger of attack. To be reasonably safe from submarines, they must not only steam at a high rate of speed, but make frequent alterations of course—a method of progression which involves an abnormally heavy consumption of fuel in traversing a given distance.

It is, therefore, extremely doubtful whether the fuel-endurance of the ships would suffice even for the outward journy of 3,400 miles; and if the fleet found itself close to the enemy's coast with empty bunkers, and no friendly base at hand, it would be exposed to certain annihilation.

Consequently, on the surface of things, it looks as if the American Navy would be physically incapable of undertaking major war-operations in the Western area of the Pacific; there is no visible means whereby the fatal handicap of nonexistent bases might be overcome. It is as if the United States, in pledging itself not to proceed with the fortification of its distant islands, had voluntarily surrendered, not merely the power to defend these possessions, but the power to defend its interests in the Far East generally, no matter how vital they are or may become in the future.

Japan, on the other hand, has gained a strategical predominance in her adjacent waters far exceeding that which she could ever have hoped to achieve had the competition in naval armaments pursued its normal course. For good or ill, the doors of the

Far East have been slammed, barred, and bolted, and the keys placed in Japanese keeping.

The British Empire, it is true, might be in a position to dispute this supremacy, thanks to its actual and potential base-resources in the Pacific; but here again the factor of distance would come into play on the side of Japan, by making sustained offensive operations against her coast next to impossible, even for a greatly superior British fleet pivoted on Singapore, New Guinea, or Australian harbors.

If these premises are sound they seem to warrant the conclusion that a naval war between the United States and Japan would speedily result in a stalemate, affording no opportunity for a decision by direct action from either side, since the opposing battle fleets would be unlikely to come within several thousand miles of each other. It is here, however, that the significance of the large program of minor naval construction, upon which Japan is now engaged, may be manifest.

Since history contains no record of a war having been decided wholly, or even mainly, by the destruction of maritime trade, the greatest authorities have always excluded the *guerre de course* from the domain of grand strategy, relegating it to a subsidiary place in the general scheme of belligerent operations at sea. Nevertheless, there was one period of the World War when it seemed as if science had placed in Germany's hands the means of undermining what had come to be regarded as a fundamental principle of naval strategy. The submarine campaign came very near to breaking the resistance of the Allies, and did, in fact, produce that anomalous situation in which the power supreme at sea, whose warships held undisputed command of the ocean surface in nearly every part of the world, nevertheless found its marine communications menaced to a highly dangerous degree, and was able only by superhuman exertions to maintain the minimum amount of sea-borne traffic essential to the further conduct of the war.

At an earlier stage of the struggle, grave loss was caused to shipping by the few German cruisers which were at large when the war began. It took a good many months to dispose of these surface corsairs, and the task was accomplished only by diverting a numerous force of swift cruisers from other war-service, and

sending them to scour every ocean area where the raiders were likely to be met with.

Comparatively large as was the fleet of cruising ships at the disposal of the Allies, it barely sufficed to meet this demand. Had fewer ships been available, the German commerce destroyers would have enjoyed a much longer lease of life, and the embarrassment they caused must have been infinitely more serious.

Among naval men a firm conviction obtains that the next great war will inevitably witness the revival of submarine attack on merchant shipping, since they believe that parchment safeguards against this practice will soon collapse under the stress of war. Assuming then that the naval methods in vogue during the World War are likely to reappear in the event of a Pacific campaign, the advantages which Japan would derive from her powerful fleet of cruisers and submarines are obvious. They would enable her, while maintaining her battle fleet intact behind its impregnable barrier of insular and coastal defenses, to wage ruthless war against her enemy's trade and communications.

When the current building program has been completed, she will possess at least twenty-five modern cruisers of great speed and wide radius of action, together with more than seventy submarines specially designed for prolonged voyaging, the majority of them being well able to cross and recross the Pacific Ocean without needing to replenish their fuel.

V

What resources has the United States Navy to deal with this immense fleet of potential commerce-destroyers? On the basis of recent war experience, it has been estimated that from four to six fast cruisers are required to circumvent the activities of one enemy surface raider; while some idea of the tremendous array of force necessary to cope with submarine attack on merchant shipping is conveyed by the fact that upward of 3,000 patrol craft of every type were kept in service by Great Britain alone, though the Germans never had more than thirty U-boats at sea simultaneously.

At the present time, there are only ten modern cruisers built or building in the United States. Even if all these ships were released from duty with the fleet, in order to protect trade routes,

what could they hope to achieve against twenty-five enemy raiders with speeds not inferior to their own?

The task would, of course, be hopeless from the start. Unless, therefore, the convoy system were adopted,—and this would be at once a difficult and a precarious business under the peculiar conditions governing warfare in the area we are considering—American merchant shipping would, in all probability, be swept from the Pacific very soon after the outbreak of hostilities with Japan.

While there is not the least reason to suppose that this blow would force the United States into submission, the combined loss of trade and prestige resulting therefrom would be a serious matter. Nor would it be possible to retaliate with any marked effect; for the same dearth of cruisers that rendered the United States powerless to protect its overseas trade would debar it from molesting the communications of the enemy.

Moreover, provided that her connections with the Asiatic mainland were secure, Japan could afford to dispense for a time with other external sources of supply, and practically the whole of her cruisers and submarines, having but little patrol duty, would be free to engage in offensive operations.

Thus, the widely held idea that a war in the Pacific must speedily end in a deadlock, in which neither opponent could inflict any appreciable damage on the other, is seen to be fallacious. It would have been sound enough had the naval limitation agreement embraced all types of fighting craft; but the failure of the Conference to extend the ratio system to cruiser and submarine tonnage has completely altered the situation.

In view of the foregoing considerations, it would cause no surprise to learn that American naval authorities entertain profound misgivings with regard to future developments in the Far East. That their responsibilities have been immeasurably increased by the Limitation Treaty is self-evident. Indeed, it might be affirmed without fear of contradiction that the treaty, by depriving the United States of all power to intervene by force of arms, has placed her interests in the Far East completely at the mercy of a foreign state, upon whose good-will they must henceforth depend. The task of defending them against aggres-

sion would have been difficult enough, had the naval limitation scheme never been conceived. As things are, their defense—by warlike action, at any rate—has to all appearances become impossible.

EDITOR'S NOTE: Other interesting articles by Mr. Hector C. Bywater will be found on pages 873 and 879 of current issue.

WHAT THE UNITED STATES NAVY COSTS AND WHO PAYS FOR IT

Its Deficiences and the Cost of Remedying Them

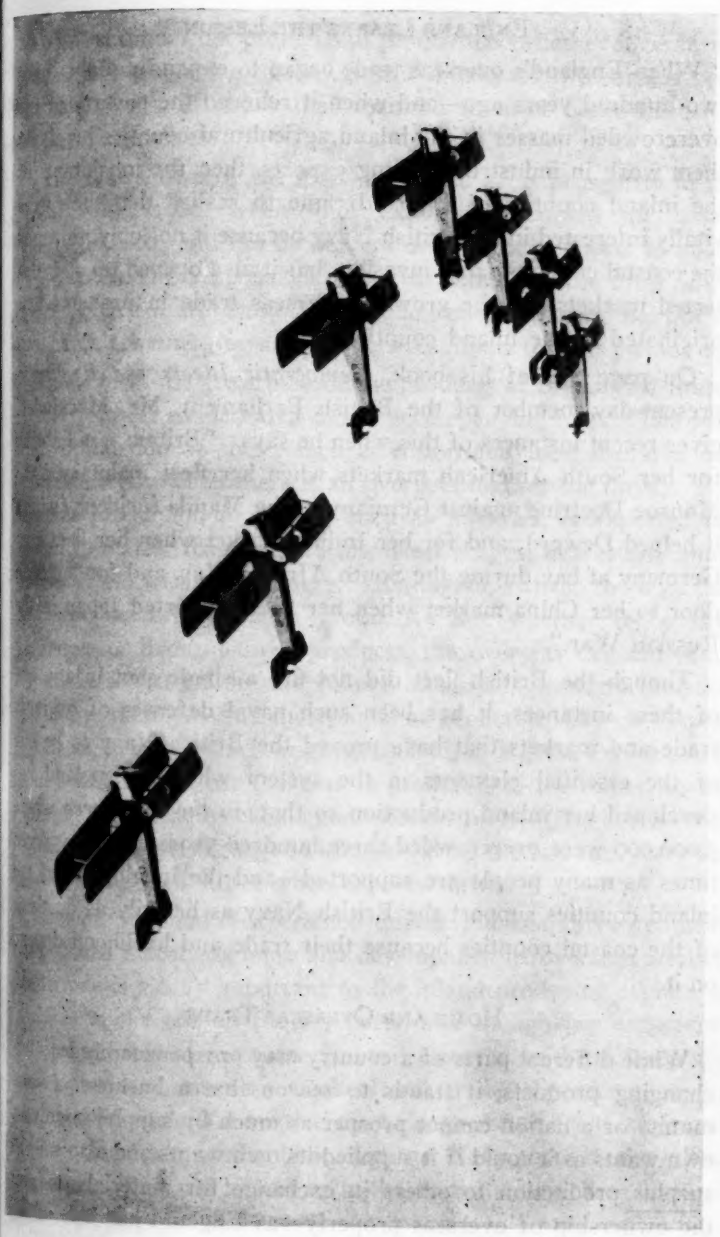
By William Howard Gardiner

Vice-president, Navy League

The accompanying map and tabulations show that most of the inland and southern states seem to look on the Navy differently than do almost all the coastal states and some few inland states. Such a difference in point of view now in the United States has an historical precedent in the England of some three hundred years ago—a point of view that has changed there in a way that should be of interest to all of us now in the United States.

Three hundred years ago there were only about 5,000,000 people living in the 51,000 square miles that are England proper—which is 5,000 square miles smaller than the single state of Illinois, in which over 6,500,000 people now live. And though there were only about 100 people per square mile in Jacobean England, the lack of work and extreme poverty of the masses led many to believe that the country then was overcrowded.

At that time the people of the inland counties of England objected extremely to contributing anything to the support of the British Navy; for they believed that its only use was to defend the coastal counties from invasion and that the inland counties were secure behind the protection of the coastal counties. In this they were about as nearly right as are some people in our inland states today. For without good roads, without railroads and without airplanes, it then would have been about as difficult for an invading force to penetrate to the heart of Jacobean England as it now would be for an invading force to reach Missouri from the Gulf of Mexico—which every strategist knows is the way really to invade the United States, avoiding the difficult transportation over the Allegheny or Rocky Mountains.



NAVY OBSERVATION PLANE SQUADRON IN FLIGHT AT SAN DIEGO, CAL.

ENGLAND LEARNS THE LESSON

When England's overseas trade began to expand rapidly—over two hundred years ago—and when it relieved the poverty of the overcrowded masses in the inland agricultural counties by giving them work in industries making exports, then the inhabitants of the inland counties of England came to realize that they were vitally interested in the British Navy because it not only protected the coastal counties from invasion, but it also opened up and protected markets for the growing overseas trade in products that originated in the inland counties.

On page 179 of his book, *Democratic Ideals and Reality*, a present-day member of the British Parliament, Mr. Mackinder, gives recent instances of this when he says: "Britain was fighting for her South American markets when her fleet maintained the Monroe Doctrine against Germany in the Manila incident (where it helped Dewey), and for her Indian market when her fleet kept Germany at bay during the South African War, and for the open door to her China market when her fleet supported Japan in the Russian War."

Though the British fleet did not fire a single shot in any one of these instances, it has been such naval defenses of overseas trade and markets that have proved the British Navy to be one of the essential elements in the system whereby England has developed her inland production so that, *in the same area* where 5,000,000 were overcrowded three hundred years ago, now seven times as many people are supported—and the inhabitants of the inland counties support the British Navy as heartily as do those of the coastal counties because their trade and livelihood depend on it.

HOME AND OVERSEAS TRADE

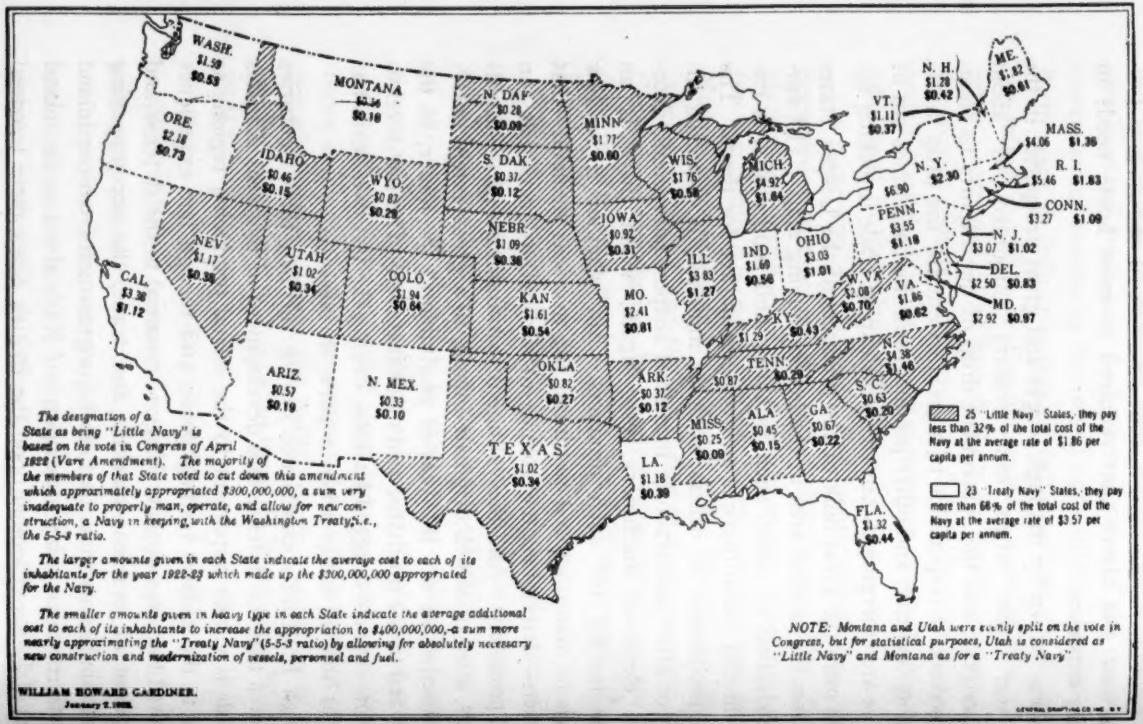
While different parts of a country may prosper merely by interchanging products, it stands to reason that a business, a community or a nation cannot prosper as much by supplying only its own wants as it could if it supplied its own wants and also sold its surplus production to others in exchange for materials *and* for the ownership of overseas property—as England has been doing to her great profit for centuries.

The maximum net profit from production, whether it be farming or manufacturing, comes from the sales of the surplus production over and above that required to meet home needs or operating expenses.

This was shown by the high wages and great prosperity in the fiscal year 1920 when our exports amounted to about $8,109,000,000; and the subsequent drop of our exports to about $3,771,000,000 is responsible to a great extent for the drop in the price of agricultural and other products and the hard times out of which we are emerging as our overseas export trade is picking up.

In the main the great bulk of the products of the United States come from the shaded area in the accompanying map. The surplus production of some, such as cotton and food stuffs, is exported directly when there is an overseas market for them. The surplus production of others, such as minerals, is exported indirectly or after manufacture into steel shapes, harvesters, automobiles, electrical machinery, etc.—again, when there is an overseas market for such products. But whether it be raw materials or manufactured products, the overseas demand—that is, markets—determines the volume of surplus products that can be sold profitably. And the volume of profitable sales of surplus products, most of which originate inland, to a great extent determines whether or not the year is profitable to the miner, to the farmer, and to the mechanic and manufacturer. The low level to which low exports dragged business during the last two years has shown us how all suffer when exports shrink.

Though England's experience during the last three centuries has proved that the defense and development of overseas markets and trade is vitally important to the inland producing regions as well as to the coastal trading ports, and though her experience has proved that an adequate Navy is essential to the defense and development of overseas markets and trade, the accompanying map and tabulations show that most Congressmen from our inland and southern states today look upon our Navy about as the inland counties of England looked upon the British Navy three hundred years ago.


WASH. $1.59 $0.53
ORE. $2.18 $0.73
CAL. $3.38 $1.12
MONTANA $0.56 $0.18
IDAHO $0.46 $0.15
NEV. $1.17 $0.39
WYO. $0.82 $0.28
UTAH $1.02 $0.34
ARIZ. $0.57 $0.19
COLO. $1.94 $0.64
N. MEX. $0.33 $0.10
N. DAK. $0.28 $0.09
S. DAK. $0.37 $0.12
NEBR. $1.09 $0.36
KAN. $1.61 $0.54
OKLA. $0.82 $0.27
TEXAS $1.02 $0.34
MINN. $1.77 $0.60
IOWA $0.92 $0.31
MO. $2.41 $0.81
ARK. $0.37 $0.12
LA. $1.18 $0.39
WIS. $1.76 $0.58
ILL. $3.83 $1.27
MICH. $4.92 $1.64
IND. $1.69 $0.56
OHIO $3.03 $1.01
KY. $1.29 $0.43
TENN. $0.87 $0.29
MISS. $0.25 $0.09
ALA. $0.45 $0.15
GA. $0.67 $0.22
FLA. $1.32 $0.44
S. C. $0.63 $0.20
N. C. $4.38 $1.46
VA. $1.86 $0.62
W. VA. $2.08 $0.70
PENN. $3.55 $1.18
N. Y. $6.90 $2.30
VT. $1.11 $0.37
N. H. $1.28 $0.42
ME. $1.82 $0.61
MASS. $4.06 $1.36
R. I. $5.46 $1.83
CONN. $3.27 $1.09
N. J. $3.07 $1.02
DEL. $2.50 $0.83
MD. $2.92 $0.97
25 "Little Navy" States, they pay less than 32% of the total cost of the Navy at the average rate of $1.86 per capita per annum.
23 "Treaty Navy" States, they pay more than 68% of the total cost of the Navy at the average rate of $3.57 per capita per annum.
The designation of a State as being "Little Navy" is based on the vote in Congress of April 1922 (Vare Amendment). The majority of the members of that State voted to cut down this amendment which approximately appropriated $300,000,000, a sum very inadequate to properly man, operate, and allow for new construction, a Navy in keeping with the Washington Treaty, i.e., the 5-5-3 ratio.
The larger amounts given in each State indicate the average cost to each of its inhabitants for the year 1922-23 which made up the $300,000,000 appropriated for the Navy.
The smaller amounts given in heavy type in each State indicate the average additional cost to each of its inhabitants to increase the appropriation to $400,000,000,-a sum more nearly approximating the "Treaty Navy" (5-5-3 ratio) by allowing for absolutely necessary new construction and modernization of vessels, personnel and fuel.
NOTE: Montana and Utah were evenly split on the vote in Congress, but for statistical purposes, Utah is considered as "Little Navy" and Montana as for a "Treaty Navy"
WILLIAM HOWARD GARDINER.
January 2, 1923.

Map showing the States the majority of whose representatives in Congress voted for or against the "Treaty Navy." Also showing the present cost per capita per annum to the inhabitants of each State of the present $300,000,000 Navy, and the additional cost per capita per annum to the inhabitants of each State of an increase in the naval appropriation to $400,000,000 in order to bring the Navy up more closely in accord

THE RESULTS OF THE ARMS CONFERENCE

The shaded states in the map are those the majority of whose Representatives in Congress voted specifically to reduce our Navy away below the treaty ratio agreed on at the Washington Conference for the Limitation of Armaments. As far as the size of our Navy is concerned, all that resulted from the Conference was that we were to scrap seventeen old capital ships and stop building thirteen of the fifteen new capital ships under construction; but we were authorized to build five new aircraft carriers. No limitations were put on the number of cruisers, destroyers, submarines or other auxiliaries we or any other power might build.

At the close of the Conference our Navy was somewhat undermanned, though it had over 100,000 enlisted men, though on fifteen of the old ships to be scrapped there were in all less than 1,000 men, and though no crews had been provided for the new capital ships, for the new aircraft carriers, for ten new cruisers and other unlimited auxiliaries we were building. Furthermore, the evidence before Congress was that the British Navy would continue to have over 100,000 men and the Japanese over 70,000. Under these circumstances the 5-5-3 ratio called for about 120,000 men in our Navy. But the "Little Navy" group in Congress, under the lead of Patrick H. Kelley of Michigan (since defeated), insisted on authorizing only 67,000 men—which would have reduced us actually below Japan instead of maintaining the 5-3 ratio. Secretary Hughes entered a plea for the effective maintenance of equality with Great Britain and five-thirds the strength of Japan, and President Harding said that 86,000 men was the minimum our Navy could get along with for the time being.

REDUCING OUR NAVY

The Vare Amendment—which was carried—raised the 67,000 men advocated by Congressman Kelly to 86,000, but not to the 120,000 then called for by the treaty ratio.

As this vote was the largest recently recorded expression of opinion in Congress, it has been taken as the latest basis of classification as between those states the majority of whose Representatives favor a "Little Navy," irrespective of the naval treaty ratio of 5-5-3, and those states where opinion is more strongly

TABLE I

SUMMARY OF CONTRIBUTION TO THE NAVY
FROM
TWENTY-FIVE "LITTLE NAVY" STATES AND FROM TWENTY-THREE "TREATY NAVY" STATES

	Population 1 July, 1922 (estimated)	Total Federal Taxes from States in 1922	Per Cent of Federal Revenue contributed by Each Group of States in 1922	Group of States	Annual Contribution of Each Group of States to a $300,000,000 Navy (See Note (a))		Annual Contribution of Each Group of States to a $400,000,000 Navy (See Note (b))		Increased Cost per Capita per Annum
					Amount	Per Capita	Amount	Per Capita	
	A	B	C	D	E	F	G	H	I
1	51,489,825	$1,009,885,055	31.92	25 "Little Navy" States	$ 95,760,000	$1.86	$127,680,000	$2.48	$0.62
2	57,277,304	2,153,464,669	68.08	23 "Treaty-Navy" States	204,240,000	3.57	272,320,000	4.75	1.18
3	108,827,129	$3,163,349,724	100.00%		$300,000,000	$2.76*	$400,000,000	$3.68*	$0.92*

* True Average (a) Approximate appropriation for present Navy (b) Appropriation absolutely necessary to more nearly approximate the Treaty Navy (5-5-3 Ratio) January 2, 1923

in favor of our having actually a "Treaty Navy." To supplement this classification—which is geographically shown on the accompanying map—there is shown also the per capita cost, based on the latest figures on the Federal Revenues from the Treasury Department and the latest estimates as to the population of each state from the Bureau of the Census. From these the accompanying tabulations have also been compiled.

WHO PAYS FOR THE NAVY

Table I shows that the twenty-five "Little Navy" States with nearly 51,500,000 inhabitants, furnish less than 32 per cent of the money to support the Navy—and they furnish it at the average rate for all of them of only $1.86 per capita per annum. That is what the total so-called "crushing burden of naval armament" amounts to in our "Little Navy" States—$1.86 per inhabitant per year!

Table I also shows that the twenty-three "Treaty Navy" States, with over 57,000,000 inhabitants, furnish over 68 per cent of the money to support the Navy—and they do this at the average rate of $3.57 per capita per annum, while the cost of the Navy to the whole country averages only $2.76 per capita per annum, or less than three-quarters of a cent per head per day! That is the economic strain, "the crushing burden" (sic) our Navy imposes on us today—less than three-quarters of a cent.

WHO PROFITS BY THE NAVY

When we recall that most of our exports originate in our interior and southern states—in our "Little Navy" states—and that history has shown that an adequate Navy is essential for the development of overseas markets and export trade, it is interesting to note that the states in which undoubtedly over two-thirds of our exports originate are paying less than one-third of the cost of the Navy which renders our "Little Navy" states over twice the commercial service it renders the "Treaty Navy" states which pay over two-thirds of its cost. In other words, for every dollar the "Little Navy" states spend on the Navy they get four times the commercial service that the "Treaty Navy" states do. And yet it is the "Little Navy" states that are objecting to the desires of the "Treaty Navy" states for what all our authorities who labored through the Washington Conference agree is the minimum

TABLE II

CONTRIBUTIONS OF THE TWENTY-FIVE "LITTLE NAVY" STATES TO THE NAVY

	Population 1 July 1922 (estimated)	Total Federal Taxes in 1922	Per Cent of Federal Revenue contributed by each State in 1922	State	Annual Contribution of Each State to a $300,000,000 Navy (See Note (a).)		Annual Contribution of Each State to a $400,000,000 Navy (See Note (b).)		Increased Cost per Capita per Annum
					Amount	Per Capita	Amount	Per Capita	
	A	B	C	D	E	F	G	H	I
1	2,402,273	$11,464,181	0.36	Ala.	$1,080,000	$0.45	$1,440,000	$0.60	$0.15
2	1,797,987	6,979,045	0.22	Ark.	660,000	0.37	880,000	0.49	0.12
3	975,837	19,956,651	0.63	Col.	1,890,000	1.94	2,520,000	2.58	0.64
4	2,969,664	20,988,707	0.66	Ga.	1,980,000	0.67	2,640,000	0.89	0.22
5	459,233	2,111,891	0.07	Idaho	210,000	0.46	280,000	0.61	0.15
6	6,703,312	270,332,568	8.55	Ill.	25,650,000	3.83	34,200,000	5.10	1.27
7	2,450,180	23,658,789	0.75	Iowa	2,250,000	0.92	3,000,000	1.23	0.31
8	1,789,423	30,379,622	0.96	Kan.	2,880,000	1.61	3,840,000	2.15	0.54
9	2,449,263	33,122,196	1.05	Ky.	3,150,000	1.29	4,200,000	1.72	0.43
10	3,889,418	201,874,185	6.38	Mich.	19,140,000	4.92	25,520,000	6.56	1.64
11	2,467,318	46,253,943	1.46	Minn.	4,380,000	1.77	5,840,000	2.37	0.60
12	1,790,618	4,640,498	0.15	Miss.	450,000	0.25	600,000	0.34	0.09
13	1,323,193	15,251,391	0.48	Nebr.	1,440,000	1.09	1,920,000	1.45	0.36
14	77,407	837,546	0.03	Nev.	90,000	1.17	120,000	1.55	0.38
15	2,649,982	122,413,329	3.87	N. C.	11,610,000	4.38	15,480,000	5.84	1.46
16	644,850	1,011,739	0.06	N. D.	180,000	0.28	240,000	0.37	0.09
17	2,123,851	18,402,453	0.58	Okla.	1,740,000	0.82	2,320,000	1.09	0.27
18	1,727,070	11,447,385	0.36	S. C.	1,080,000	0.63	1,440,000	0.83	0.20
19	650,108	2,565,444	0.08	S. D.	240,000	0.37	320,000	0.49	0.12
20	2,377,308	21,794,677	0.69	Tenn.	2,070.000	0.87	2,760,000	1.16	0.29
21	4,860,658	52,347,676	1.66	Texas	4,980,000	1.02	6,640,000	1.36	0.34
22	468,979	5,130,487	0.16	Utah	480,000	1.02	640,000	1.36	0.34
23	1,526,169	33,452,438	1.06	W. Va.	3,180,000	2.08	4,240,000	2.78	0.70
24	2,708,858	50,488,606	1.59	Wis.	4,770,000	1.76	6,360,000	2.34	0.58
25	206,875	2,079,558	0.06	Wyo.	180,000	0.87	240,000	1.16	0.29
26	51,549,825	$1,009,885,055	31.92%		$95,760,000	$1.86*	$127,680,000	$2.48*	$0.62*

* True Average (a) Approximate appropriation for present Navy (b) Appropriation absolutely necessary to more nearly approximate the Treaty Navy (5-5-3 Ratio) January 2, 1923

Navy "necessary to our defense and to our prestige"—the "Treaty Navy" in all respects.

Tables II and III show the details, state by state, for the "Little Navy" group of states and for the "Treaty Navy" group of states, which are summarized in Table I. It is interesting to note not only that the "Treaty Navy" states pay over two-thirds of the total Federal Taxes and of the cost of the Navy, but that the seven coastal states of California, Connecticut, Maryland, Massachusetts, New Jersey, New York and Pennsylvania together pay 51.25 per cent of the total Federal Taxes and of the total cost of the Navy.

A glance at the cost of the Navy to some of the states whose Representatives seem averse to maintaining the "Treaty Navy" is interesting. Column F in Table II shows that Alabama pays forty-five cents per capita per annum for the Navy, Arkansas thirty-seven cents, Georgia sixty-seven cents, Idaho forty-six cents, Mississippi twenty-five cents, North Dakota twenty-eight cents, South Carolina sixty-three cents and South Dakota thirty-seven cents per capita per annum. But such industrial "Little Navy" states as Illinois and Michigan, with their harvesters and automobiles (for export) bring the average of this group up to $1.86 per capita per annum as their contribution to their Navy.

THE OFFICIAL NAVAL POLICY

Up to this point we have considered the costs of the Navy only as it is. Let us pass on to its requirements and to their costs. In his Annual Report, Secretary Denby set up certain basic naval policies:

> "To create, maintain and operate a Navy second to none in conformity with the ratios for capital ships established by the treaty for the limitation of naval armaments.
>
> "To make the capital ship ratio the basis of building effort in all classes of fighting ships.
>
> "To maintain an active personnel afloat in conformity with the ratios for capital ships established by the treaty for the limitation of naval armaments."

THE NAVY'S DEFICIENCIES

Secretary Denby's Annual Report then states specifically that inadequate allowance of personnel and of fuel have resulted in

TABLE III

CONTRIBUTIONS OF THE TWENTY-THREE "TREATY NAVY" STATES TO THE NAVY

	Population 1 July 1922 (estimated)	Total Federal Taxes in 1922	Per Cent of Federal Revenue contributed by each Group of States in 1922	State	Annual Contribution of Each State to a $300,000,000 Navy (See Note (a).)		Annual Contribution of Each State to a $400,000,000 Navy (See Note (b).)		Increased Cost per Capita per Annum
					Amount	Per Capita	Amount	Per Capita	
	A	B	C	D	E	F	G	H	I
1	367,589	$ 2,141,235	0.07	Ariz.	$ 210,000	$0.57	$ 280,000	$0.76	$0.19
2	3,697,070	131,652,856	4.16	Cal.	12,480,000	3.38	16,640,000	4.50	1.12
3	1,449,097	50,224,646	1.58	Conn.	4,740,000	3.27	6,320,000	4.36	1.09
4	228,330	5,889,266	0.19	Del.	570,000	2.50	760,000	3.33	0.83
5	1,024,054	14,319,857	0.45	Fla.	1,350,000	1.32	1,800,000	1.76	0.44
6	2,989,493	53,032,400	1.68	Ind.	5,040,000	1.69	6,720,000	2.25	0.56
7	1,836,106	22,753,958	0.72	La.	2,160,000	1.18	2,880,000	1.57	0.39
8	774,617	14,804,208	0.47	Me.	1,410,000	1.82	1,880,000	2.43	0.61
9	1,489,399	45,971,937	1.45	Md.	4,350,000	2.92	5,800,000	3.89	0.97
10	3,977,490	169,813,494	5.38	Mass.	16,140,000	4.06	21,520,000	5.41	1.35
11	3,432,566	87,456,488	2.76	Mo.	8,280,000	2.41	11,040,000	3.22	0.81
12	593,396	3,432,162	0.11	Mont.	330,000	0.56	440,000	0.74	0.18
13	446,304	5,909,999	0.19	N. H.	570,000	1.28	760,000	1.70	0.42
14	3,315,231	107,149,339	3.39	N. J.	10,170,000	3.07	13,560,000	4.09	1.02
15	368,861	1,230,701	0.04	N. Mex.	120,000	0.33	160,000	0.43	0.10
16	10,712,680	779,772,777	24.65	N. Y.	73,950,000	6.90	98,600,000	9.20	2.30
17	6,014,914	192,301,680	6.08	Ohio	18,240,000	3.03	24,320,000	4.04	1.01
18	811,875	18,792,189	0.59	Ore.	1,770,000	2.18	2,360,000	2.91	0.73
19	8,991,666	336,708,043	10.64	Penn.	31,920,000	3.55	42,560,000	4.73	1.18
20	620,308	35,743,707	1.13	R. I.	3,390,000	5.46	4,520,000	7.29	1.83
21	352,428	4,157,296	0.13	Vt.	390,000	1.11	520,000	1.48	0.37
22	2,372,940	46,595,649	1.47	Va.	4,410,000	1.86	5,880,000	2.48	0.62
23	1,411,800	23,610,782	0.75	Wash.	2,250,000	1.59	3,000,000	2.12	0.53
24									
25									
26	57,377,304	$2,153,464,669	68.06%		$204,240,000	$3.57*	$272,320,000	$4.75*	$1.18*

*True Average (a) Approximate appropriation for present Navy (b) Appropriation absolutely necessary to more nearly approximate the Treaty Navy (5-5-3 Ratio) January 2, 1923

the deterioration of vessels, in inadequate training of the fleet and in a lowering of its gunnery exercises. He also says:

> "I feel it my duty to report to you that in certain types, such as fast cruisers, aircraft carriers, seagoing submarines and aircraft, the Navy is deficient."

In this connection it must be remembered:

(1) The *enlisted personnel* incident to the British Navy is over 100,000 and that of the Japanese Navy is about 65,000. Consequently the 5-5-3 treaty ratio calls for an enlisted personnel of about 108,000 men in the United States Navy.

(2) The *modern cruisers* built and building in the British Navy number fifty-six and aggregate 296,390 tons while those in the Japanese Navy number twenty-five and aggregate 157,730 tons. The United States Navy has no completed cruiser less than twelve years old, but is building ten modern cruisers aggregating 75,000 tons. The 5-5-3 treaty ratio calls for us to build in addition to these, the equivalent of twenty-two ten-thousand-ton cruisers.

(3) In *seagoing submarines* the British Navy has fifteen built and two building while the Japanese have twenty-eight built, building or immediately projected. The United States has only three built and three building. Consequently, the 5-5-3 ratio calls for us to build forty more seagoing submarines for the United States Navy.

REQUIREMENTS AFLOAT

The following outline gives the total requirements—apart from aviation proper—that now seem necessary to round out and balance up our fleet and to make it adequately efficient under the 5-5-3 ratio. But it should be realized that changes in the British and Japanese programs may call for corresponding changes in the following estimates.

The equivalent of twenty-two ten-thousand-ton cruisers...	$231,000,000
The equivalent of forty long radius seagoing submarines....	160,000,000
The equivalent of 69,000 tons of aircraft carriers (in addition to those now building).....	58,000,000
To modernize our battleships.....	30,000,000
To complete miscellaneous auxiliaries now building (supplemental to 1923-24 appropriation).....	35,000,000
Total to round out and balance the fleet under the 5-5-3 ratio..	$514,000,000

REQUIREMENTS ASHORE

It should be borne prominently in mind that a fleet of naval vessels is just as dependent on supply and operating bases as is the rolling stock of a railroad—it is even more dependent on them. At the present time our naval bases on the Atlantic coast are slightly deficient; but our bases on the Pacific are wholly inadequate to support the fleet in the Pacific even in peace time. To the fleet figures above given should be added at least the following:

To modernize and develop naval supply and operating bases..	$146,000,000

One of the very important and costly essentials in a naval base are adequate docking facilities. The efficiency of this work can be greatly enhanced by providing floating docks that can be moved as the movements of the fleet may require. About $40,000,000 would provide what may prove to be approximately adequate facilities in this respect.

As a summary of building requirements we therefore have:

To round out and balance the fleet.....	$514,000,000
To furnish approximately adequate bases and floating docks	186,000,000
Total construction required to bring the Navy up to the 5-5-3 ratio	$700,000,000

ANNUAL COSTS

A study of procedure in naval construction suggests that only about one-tenth of this total sum, or $70,000,000, could be expended efficiently in the first year in which the construction to bring the Navy actually up to the 5-5-3 ratio is inaugurated.

It was shown above that the 5-5-3 ratio calls for an enlisted personnel in the United States Navy of about 108,000 men. But until construction now in hand is completed—about a year hence—it would seem that we might be able to do with a total of only about 96,000 men—to complete the complements of vessels now undermanned and to put in commission vessels to compensate, for instance, for those now being used in humanitarian work in the Near East

It also was stated above that restricted appropriations for supplies, etc., are impairing the training and gunnery of the fleet. It

would seem therefore that the following allowance should be made to improve the efficiency of the fleet now afloat pending its being rounded out:

Allowance for 10,000 men and their sustenance.....	$10,000,000
Allowance for supplies incidental to increased training.....	20,000,000
	$30,000,000

To raise the efficiency of the present fleet and to begin construction of the vessels and bases necessary to bring it actually up to the 5-5-3 ratio in every respect, a fair estimate for the first year is as follows:

Additional personnel and fleet operation	$30,000,000
Additional fleet construction	51,400,000
Additional base facilities	18,600,000
	$100,000,000

TAXES IN THE UNITED STATES

Though this sum looks large as, say, an increment to taxes, it would mean only an increase of about one per cent in the total sum of nearly *ten billion dollars* which we spent for government in 1922—as appears from the following table:

TABLE IV APPROXIMATE TOTAL TAXATION IN THE U. S.

	Purposes	Amounts	Averages per Capita for 1922
	A	B	C
1	Municipal and Town	$4,151,000,000	$38.08
2	County	1,285,000,000	11.79
3	State	1,285,000,000	11.79
4	Navy (Federal)	300,000,000	2.76
5	Other Federal Purposes	2,863,000,000	26.27
6	Present Totals	$9,884,000,000	$90.68
7	Additional Cost of a $400,000,000 Navy	100,000,000	0.92
8	TOTALS	$9,984,000,000	$91.60

Line 7, Column C, of the above table shows that this move to maintain the naval treaty ratio would cost an average of ninety-two cents per capita per annum for the whole country—out of a total cost of $91.60 per capita per annum for our government.

Reference to Line 1, Column I of Table I develops, however, the further fact that the increased costs to the "Little Navy" states, as a group, would be only *sixty-two cents* per capita per annum. And if we glance down Column I of Table II, we see just what would be the increment cost per capita per annum for each of the "Little Navy" states. For instance, for Arkansas, twelve cents per capita per annum, for Idaho, fifteen cents, for Mississippi and North Dakota, nine cents, and for South Dakota, twelve cents.

In considering all of the costs cited in the accompanying tabulations it should be realized that Federal Taxes consist almost entirely of Income Taxes and Excess Profit Taxes, the great bulk of which are paid by individuals having comparatively large incomes in the cities and by the more profitable corporations. The result of this is that New York State alone paid almost a quarter of the total Federal Taxes in 1922, whereas agricultural states—and the agricultural population of the country as a whole—make a disproportionately small contribution to the Federal Taxes and to the cost of the Navy.

To bring it up toward the treaty ratio will cost an additional average for the whole country of about ninety-two cents per capita per annum. The "Treaty Navy" states, which pay over two-thirds of the cost of the Navy, would meet this increased cost at the average rate of $1.18 per capita per annum. The question is: will the "Little Navy" states, which pay less than one-third of the cost of the Navy, continue to oppose the Navy's being brought up toward the treaty ratio when they realize that to do this will cost them *only sixty-two cents* per capita per annum? Will they continue their opposition when they realize—as the inland counties of England began to realize over two hundred years ago—that an adequate Navy is essential to the protection and development of the foreign trade of the United States, a trade over two-thirds of which originates in our inland and southern states?

It should be realized that the current Naval Bill for 1924, as passed by the House of Representatives and by the Senate, makes virtually no provisions for bringing the Navy up materially nearer to the treaty ratio. It should be the hope and effort of every American that adequate supplemental measures to this effect will be passed by the present Congress.

DISCUSSION

The Part of Engineering in Command

(See Page 203, February, 1923, Proceedings)

Rear Admiral N. C. Twining, U. S. Navy.—It may, indeed, be true, as suggested by Admiral Wilson in his discussion of Admiral Robison's paper, that the author, in his enthusiasm for his subject, has not discriminated with nicety between engineering in general and marine engineering and that he has taken into the engineering family certain adopted children who have with it no blood relationship; but this association of what, after all, are really branches of the same science serves the useful purpose of broadening our view and saving us from the error of regarding naval engineering as including only what is usually connoted by the term "marine engineering," that is, the science of motive power afloat.

That the present-day naval officer of the line must be, to some extent, an engineer, both theoretical and practical, is a matter of common knowledge. That the value of engineering knowledge is not to the junior officer alone but to officers exercising command as well is the theme of Admiral Robison's paper, a theme which he has very ably and convincingly developed; if he has included the broad field of naval engineering in his survey he has stressed the importance of the narrower field of marine engineering.

We are now far from the days when the captain reprimanded his chief engineer for not having taken on board a spare vacuum while fitting out at the navy yard and the executive officer thought that nothing smaller than the sailing launch could serve to transport a five-ton jack but we have still, perhaps, to become fully alive to the fact that engineering knowledge is no less essential to the equipment of an officer for command than is a knowledge of strategy, tactics, and leadership.

It is true that not all men have equal liking for engineering nor equal capacity for becoming proficient in it but the same inequality exists respecting other branches of the naval profession. To some naval officers "engine room duty" is distasteful; others dislike watch standing and drilling; not all can be expected to like or become expert in everything involved in the exercise of their profession but all can be made to realize the importance of acquiring a thorough working knowledge of all the practical branches, including engineering, and the necessity of such knowledge as a part of the mental equipment of a successful naval officer.

As Admiral Robison points out, the naval officers who fought the *Constitution* were masters of knowledge of the motive power at their command; had their knowledge been confined to the fact that the braces swung the yards their practical skill in handling their vessel would not have been great but would have been on a par with that of an officer of

today whose knowledge of his motive power is confined to the manipulation of the engine telegraph.

Whether or not the amalgamation of 1899 has proved beneficial to the navy in a material way is a question that is still argued pro and con; Admiral Robison, who is certainly in a position to know whereof he speaks, thinks that "the efficiency of the navy is now suffering from a fallacious idea on the part of some younger officers, that engineering duty can be neglected without interfering with their development for high command"; obviously relief from this condition must be sought by awakening all officers, both the younger and the older, to the fallaciousness of the idea. The argument against the amalgamation will lose all point and application when the service shall have become thoroughly alive to the fact that engineering is a branch of the naval profession that is no less certainly within the line officer's province than command.

Admiral Wilson refers to the impression that has unquestionably existed in the service at large that "too much engineering duty" has, in some instances, operated to prevent an officer's selection for promotion; certainly no officer has failed of selection by reason of his record for engineering duty unless, by taking "too much" of it he has had "too little" duty in the other lines necessary to his development. In such case it is difficult to see how the Selection Board could do otherwise than pass him over; with the acceptance of the truth that a knowledge of engineering is an essential part of an officer's equipment for command will come the correlative practice of passing over such officers as may have had an excess of other duty to the detriment of their development in engineering knowledge and experience.

The Part of Engineering in Command

(SEE PAGE 203, FEBRUARY, 1923, PROCEEDINGS)

DISCUSSION BY REAR ADMIRAL C. W. DYSON, U. S. NAVY.—I have read both the paper written by Admiral Robison and its discussion by Admiral Wilson with much interest.

As an engineer of long experience in the naval service I naturally sympathize most heartily with the majority of the statements made by the former. I am firmly of the opinion that no officer is really fitted for command unless he possesses sufficient knowledge concerning his ship and her "matériel" to enable him to check up by personal inspection the reports of his subordinates as to condition of the matériel under their charge.

Shining bright work and glistening new paint can cover up a multitude of sins and do cover them up in cases where the Senior Engineer Officer of a vessel is the military head only, and not the technical head of his department. The Commanding Officer of a vessel having such a Senior Engineer Officer is frequently deceived by appearances until his ship begins to fall off rapidly in efficiency. When this condition is arrived at, he

is then further deceived, unwittingly it is true, by his non-technical assistant who floods him with reports criticizing the design of the different items of equipment which are troubling him, and recommending that they be condemned and replaced by new machinery of later development. Finally the ship becomes a "lame duck" and is sent to a Navy Yard where she may spend months in the doctor's hands, and all of this due to a lack of appreciation of the old saw "a stitch in time saves nine," which in these cases could be changed to read "saves nine hundred ninety-nine."

A Commanding Officer with engineering experience can readily detect the difference between decreased efficiency due to fair wear and tear and that due to neglect, either due to inexperience or to carelessness, and can promptly take measures to correct the latter. If his responsible assistant is nothing more than the commissioned means of communication between the non-commissioned personnel of the department under his charge and the Commanding Officer, and the technical knowledge of the latter is insufficient to check up the reports made to him, there is little hope for the command remaining an efficient one for any great length of time.

The officer personnel is loyal to the core, both to the service and to their superior officers, but loyalty does not make up for experience and experience can be obtained only by close personal contact with the matériel. Experience teaches us what must be done to guard against trouble and what to do to correct troubles when they occur. It also teaches us our limitations as to self-support and points out to us the proper lines to follow in the search for improvement.

There is a great tendency in the service to confuse the terms "engineer" and "engine driver." An engine driver can be trained in a few months; it takes many months to train an operating engineer while it takes years to train a designer. An engine driver, pure and simple, bears about the the same relation to an operating engineer that a driver does to a horseman. A driver will get the last atom of speed out of his horse even though the latter drops dead at the end of the race. A horseman will obtain the last atom of speed that can be safely obtained without ruining the animal he is handling. Apropos to this, I have a case in mind where a young officer was ordered to duty as Senior Engineer of one of our vessels and some time after assuming this duty the vessel was taken for a full speed trial. Shortly after the run had been held the Senior Engineer received a letter of commendation from the C-in-C based on the fact that the vessel had exceeded her original trial speed. Shortly after, the vessel was ordered to a dockyard where she was under repairs for weeks making good the damage which had been done during this commendable (?) trial.

Ignorance of engineering knowledge on the part of commanding officers sometimes leads to rather funny situations, as for instance: At one time in my service I took part in a long cruise of the fleet during which after running for several days at 10 knots speed the speed was increased to 12 knots and again, later, to 13 knots. One vessel in the fleet was burn-

ing 28 tons of coal at low speed; at 12 knots she reported burning 30 tons while at 13 knots her reported consumption was about 33 tons. Upon arrival at our destination all of the commanding officers of the fleet were summoned on board the Flagship. Upon the return of my Captain I asked him what they thought of the run. He replied that nobody could talk of anything but the wonderful showing of the———— and do nothing but congratulate her Captain. He was well worthy of congratulations for his ship had performed a miracle as is readily seen when you consider that the horsepowers for different speeds vary approximately as the cubes of the speeds, and that the fuel varies nearly as the horsepowers. The————————had driven at 12 and 13 knots for very nearly the same power she required for 10 knots. Marvelous vessel! All you had to do was to wish a speed and you got it with no increase in cost.

I have been acquainted with, and have been shipmates with, very many splendid officers of command rank during my long service, but the majority of them were like a fine man with a wooden leg. He would have been a finer man with both legs. These splendid officers would have been still better ones if they had had the leg of engineering knowledge in addition to that of deck knowledge.

Some of our officers who entered the service in the days when canvas was supreme as a motive power and steam propulsion was no more than an auxiliary have, I am afraid, never gotten rid of the crick in their necks which they contracted from watching the weather leech of the top-gallant sail, and have been unable to look down and realize the revolution which has taken place beneath their feet.

While such officers have been unable to lower their eyes below the edge of the horizon, the hulls under their feet have changed from the 3,800-ton wooden hull of the *Trenton,* carrying a small three thousand horsepower engine and making 14 knots speed, to the 31,000-ton hull of the *Maryland* with 30,000 horsepower on her shafts and 21 knots, up to the *Saratoga* and *Lexington* of 35,000 tons, 180,000 horsepower and 34 knots speed.

Everything on the new ship is done by machinery. Even machinery is called in to assist you in taking a bath. The ship has become an immense machinery establishment of which the heart is the boiler installation. Let the heart fail and the establishment dies. This establishment being one in which victory is manufactured, it stands to reason that that officer who most thoroughly understands the component parts of the establishment over which he rules, and that assistant who has the best working knowledge of the portion of the establishment over which he has control, will produce the best results.

Admiral Wilson states "a successful fighting unit must be a fine example of teamwork." I agree with him but I would further add—and let each unit that enters into this team be given ample opportunity to familiarize

himself with his duties on the team in order that the team will function to the utmost efficiency during the crucial hour of trial.

The engineer department of a fighting ship is today as great a part of her fighting equipment as is her battery. It puts her into the fight, it keeps her in the fight, and if necessary it takes her out of the fight and renders her escape from an enemy of greater gun power possible. It has not been so long ago that speed was rated higher than armor as a protection. If this is a fact, what is speed but engine power, and what is engine power but the result of efficiency and training of the engineers?

The prejudices and opinions of men who go down to the sea in ships are proverbially strong and extremely hard to overcome. It required a period of sixty years from the first introduction of steam power into our navy until the last scrap of canvas for propulsive power was swept from our ships. Other strong prejudices have disappeared over night as the result of a sledge hammer blow. Thus, the old fetish of "wooden hulls and iron men" disappeared in the flame and smoke of the *Congress* and *Cumberland* while the guns of the ironclad *Merrimac* sounded requiem over its grave. Are we going to be allowed the long years necessary to bring to full growth the doctrine that such a living, vibrant creation of engineering skill as the modern fighting ship requires equal engineering skill on the part of those in whose hands its destiny lies in order that it may be maintained at a high degree of efficiency? Or must this doctrine be driven into us by the titan blows of terrible disaster, or by the bitter taste of shameful defeat?

An Administrative Flagship

(SEE PAGE 1299, AUGUST, 1922, PROCEEDINGS)

AND

A Fighting Leader for the Fleet

(SEE PAGE 561, APRIL, 1922, PROCEEDINGS)

REAR ADMIRAL N. C. TWINING, U. S. NAVY.—Each of these papers, while approaching the subject from a different angle and treating it in a different manner, has as its main theme the question whether the flagship of the commander-in-chief of a fleet should be a battleship (or other fighting ship of his command) or a separate, unattached vessel not intended or expected to "lie in the line" in battle. Each paper presents a thoughtful and logical argument and each, taken by itself, is a well-nigh convincing demonstration of the author's theorem; yet the conclusions reached in the two papers are diametrically opposed to each other.

It is convenient, for the purposes of a discussion of the two papers, to take up first the later one, that by Captain Taussig, which, as its title indicates, is a plea for a fast, commodious flagship for the commander-in-chief of a fleet; a flagship not attached to any tactical or task group; capable of housing the commander-in-chief and his staff and of transport-

ing them to any part of his command at his will without interrupting or interfering with the training of any one of the units or subdivisions of the fleet.

The writer presents a number of very cogent reasons for having such a flagship which may be summarized as follows:

1. The commander-in-chief of a large fleet the elements of which may be widely scattered must, for administrative purposes, be free to go wherever and whenever he pleases; the separate flagship becomes a fleet G. H. Q. entirely independent tactically and administratively of any subdivisions of the fleet and gives the commander-in-chief this freedom.

2. For the commander-in-chief's flagship to be attached to one of the subdivisions of the fleet:

(a) is not conducive to the proper administration of the fleet as a whole;

(b) does not permit the commander-in-chief wide enough latitude in conducting a strategic campaign;

(c) may be of considerable embarrassment to him in a fleet action;

(d) narrows his viewpoint.

3. No battleship or other fighting ship has sufficient space for properly housing the commander-in-chief and his staff.

4. A battleship flagship would either tie the commander-in-chief to the battleships or would remove one battleship from association and training with the others.

5. Facilities are made available for the installation of a much more complete and effective communication system (particularly as to radio) than would be possible in a battleship.

6. Training of officer personnel by means of tactical games and chart maneuvers is facilitated.

It will be observed that, with two exceptions, all these reasons bear mainly on the administrative features of the exercise of command; the reasons, while not all of equal weight, are sound and one cannot escape the conclusion that, for most effective administration of his fleet, the commander-in-chief should have the mobility afforded by a separate, unattached flagship. The questions of his proper position and function in battle are, however, practically untouched and are open to further consideration.

In setting down the reasons for service opposition to the administrative flagship Captain Taussig gives chief place to these:

1. Conservative opposition to innovations.
2. Tradition that a naval commander must always be in the front line.
3. Administrative ship is not a fighting unit.
4. Economic and political.

These reasons are pretty effectually disposed of with the exception of the second but it is in this one that the crux of the whole matter lies and

it is the one which leads to the different conclusions reached by Captain Taussig and Lieutenant-Commander Turner.

Captain Taussig very properly points out that not all traditions are good and that improvement has always come by discriminating between the good and the bad and casting aside the bad; he says, "here we have the tradition that a naval commander must always be in the front line" and seems to imply that, not only is this a bad tradition and should, therefore, be cast aside, but that in any case it has little bearing on the question of the administrative flagship; he states that those who argue against the administrative flagship on account of the front line tradition have tactical considerations in mind whereas the value of such a ship is determined by considerations of preparation, training, administration, and "the long strategic campaign" preceding a fleet battle.

What, then, is the commander-in-chief to do when the period of preparation and training, complexities of administration, the "long strategic campaign" culminate in battle? In what ship is he to be embarked? To what extent is he to exercise tactical command? These questions are not specifically considered by Captain Taussig and would seem, from the statement referred to in the preceding paragraph, to have been considered of secondary importance. But can we admit that the question of command in battle is of secondary importance? Is it not, on the contrary, of the first importance and is not any organization that does not take it fully into account, in truth a peace organization? As Captain Taussig truly says, it is fundamentally wrong to have a peace organization and a war organization.

If Captain Taussig has touched but lightly on the matter of tactical command in battle it is evident that he has not failed to consider it; this is indicated by his discussion of "tradition" and by his development of assumed analogies between military and naval operations and the exercise of command in the two fields. For example, "It used to be the tradition for an army commander always to be in the front line, and always to lead his troops in battle. As armies grew larger, this tradition had to give way to more sensible practice. The commander of an army now takes a position from which he can best handle the situation, and this position is *not* in the front line. It is known as "general headquarters," and may be anywhere *"not too near* the fighting front"; and again (in discussion of "A Fighting Leader for the Fleet"), "It was not so very many years ago when the army followed the tradition of always having the commander-in-chief at the front, leading his troops into battle. When armies got too big for this they stopped that foolishness and put the leader where he could best control; which was not a place where he would likely be the first man killed."

Now, one is inclined to think that it is a good many years since the *commander-in-chief* of an army personally led his troops into battle and one may question whether, when such was the custom, the practice was

"foolishness" and whether the modern practice was adopted as being "more sensible." Indeed, one might contend that, conditions permitting, the proper place for a military commander is in personal command and leadership of his troops and that he has been relegated to a position "not too near the fighting front" by force of circumstances, such as the size of armies and the methods of warfare, rather than because of a perception of any "foolishness" in the ancient practice.

It is notorious that troops are better *led* than pushed or driven and there is a psychological value in the troops knowing that their commander is in the fight with them and not in a place of comparative safety in the rear. Just how far up in the hierarchy of command we are to find the dividing line between fighting with the troops and controlling from the rear it would be difficult to say and, in any case, it must vary with circumstances. No one, however, would advocate the commander-in-chief of an army fighting in the first line trenches or "going over the top" with the shock troops and this not only because he is too valuable a man to the organization to be "the first man killed" but because he could exercise no effective command from that position. His place is, unquestionably, that from which he can most effectively exercise command.

Aside from these points, however, which are relatively unimportant but bear on the question of the perfection of the analogy between armies and fleets, we must consider the conditions under which the army and naval commanders respectively exercise their commands. The army commander, well behind the lines, sees nothing himself but shapes all his actions on information received; his communications are good and he receives timely reports from all sectors of his front; it is true that, in these days of colossal armies and extended fronts, the commander has not the same facility of control of troops as in the days of small armies and localized contact with the enemy; nevertheless the duration of a battle over several days enables him to alter plans, change his dispositions, distribute reserves, re-inforce hard-pressed points, and thus to participate tactically in the battle.

The case of the naval commander-in-chief is hardly a parallel one; he has not by any means the same facility of communication and must depend, for his grasp of the situation, on his personal vision and that of his staff officers; forces move at high speed and situations develop rapidly; a battle can hardly continue for days as is the case on shore but may be decided in a few minutes of fighting and probably will be within a few hours after the first contact. The naval commander has no reserves, in the sense in which that term is applied to land forces; his auxiliary forces, destroyers, submarines, and aircraft, may be considered in a way as reserves and their attacks may be so timed as to have the same effect as that of reserve troops brought into action on shore but it is by no means certain that the commander-in-chief in a detached flagship and perhaps far distant from the main forces is the best judge of the moment when these auxiliary attacks should be made.

Thus the analogy between battles at sea and on shore is seen to be very incomplete and the fact that a military commander exercises tactical command from a general headquarters distant from the field of battle does not justify the assumption that naval command in battle should be exercised in a similar way. It is evident to any one familiar with the sea that the exercise of tactical command in battle over a large force of diversified character will be most difficult and that much more must be left to indoctrination and to the initiative of subordinate commanders than is necessarily the case on shore. The battleships being the backbone of the fleet the fleet is not defeated so long as the battleships survive as a fighting force; our efforts must be directed mainly against the enemy battleships; our offensive is delivered, not by battleships alone, but by all our forces co-operatively and co-ordinately. Who can better judge of the time and manner in which the attacks of the several auxiliary forces should be delivered than the commander who is in our battleship line and is at grips with the enemy battleships? Bearing in mind that personal vision must be almost entirely depended upon for information, that vision is restricted whether from a fighting battleship in the line or from an independent ship out of the line, and that here, as in so many military situations, "time is everything," is not the commander who is placed nearest to the decisive point the one to determine when and how to deliver the decisive blow?

Turning now to Lieutenant-Commander Turner's paper we find it to be, in the main, a plea for the traditions of the sea, ". . . . the fighting leader commanding the fleet from a fighting ship and exercising a personal control whether of strategical operations or tactical movements in battle that has in the case of shore forces necessarily been delegated to subordinates by the general in command."

Captain Taussig has clearly shown that, for all except tactical purposes, the functions of the commander-in-chief are better exercised in a non-fighting ship; to that extent it is believed that Mr. Turner's thesis cannot be maintained, but when we approach battle and the tactical command it would seem that his contention is sound; tradition, in this respect, is not bad and should not be cast aside.

Mr. Turner's statement that the battleships are the fleet, if taken literally, can hardly be subscribed to as Captain Taussig very properly points out in his discussion of Mr. Turner's paper but, as has been said previously in this discussion, they are its backbone and as long as they are undefeated the fleet is undefeated; it is doubtless this fact that Mr. Turner had in mind in making his statement and, as already pointed out, it has a very important bearing on the question of tactical command in battle. Lieutenant-Commander Turner's argument, if regarded as an argument in favor of the commander of the battleships being in a battleship in the fighting line, is sound. If this seems like setting up a straw man to be knocked down it must be remembered that, even before fleets consisted of

anything but battleships with, perhaps, a few torpedo craft, there were many advocates of the plan of having the commander-in-chief outside the line and controlling the tactics of the battle from a separate ship. With battle ranges well inside ten thousand yards and torpedo range less than five thousand the proposal would seem to have had more merit than under existing conditions.

A noteworthy statement in Mr. Turner's paper is this: "Any device that takes from the commander-in-chief his power of using the battleship force with instant facility for gaining his ends is fundamentally wrong. He should indeed, be its immediate commander, and whatever organization is necessary to relieve the admiral of administrative details should never be allowed to separate him so far that he will cease to be the actual tactical commander of that force."

Mr. Turner further shows that the "Two Flagship" plan not only fails to meet this requirement but is inherently bad for other reasons. If the commander-in-chief is to have one flagship should it be one that is most effective for administrative purposes or one that will enable him most effectively to exercise command in battle? Can there be any doubt as to the correct answer to this question?

The suggestion has sometimes been made that the commander-in-chief command the fleet in battle from an airship; Commander H. D. Cooke has recently enlarged on this idea in his discusison of Commander Jackson's paper on "Employment and Tactics of Aircraft." Should such a plan, on thorough examination and trial, be found feasible it would seem to offer a very satisfactory solution of the problem of the commander-in-chief's position in battle, being free from many of the objections to the independent flagship and having the very great advantage of giving a greatly extended range of vision to the admiral. So long, however, as we are confined to the surface of the water in our search for the commander-in-chief's battle flagship it would seem that a battleship in the line is the inevitable end of our search. If that is the proper place for the commander-in-chief in battle it is the proper place for him at all times and the freedom needed by him for visiting all portions of his command must be gained by placing at his disposal a tender of suitable size and equipment.

In both the papers under consideration and in this discussion it has been assumed that the commander-in-chief of the fleet was to command the fleet in battle. Under our present fleet organization, however, we have a "battle fleet" comprising battleships, cruisers, destroyers, and aircraft; presumably fleet submarines, if existent, would also be included. This "battle fleet" has a commander-in-chief whose flagship is a battleship; if this officer is to command the battle fleet in action he is placed in accordance with the principle developed in this discussion. There is still above him a commander-in-chief of the United States Fleet who is also, at present, borne in a battleship; if he is to command the battle fleet in action our principle is still adhered to so that, for the present, at least, we have

the "fighting leader in a fighting ship" for which Lieutenant-Commander Turner contends.

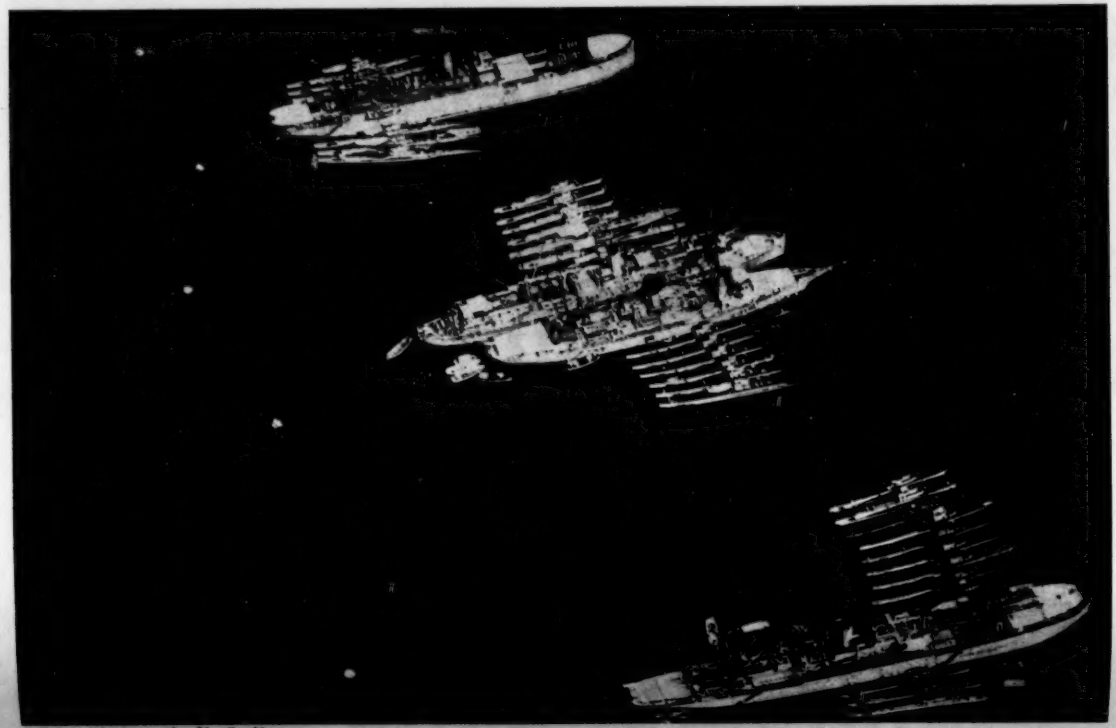
Life Insurance as Applied to the Naval Service

(SEE PAGE 2107, DECEMBER, 1922, PROCEEDINGS)

MAJOR K. F. ADAMSON, ORD. DEPT. U. S. ARMY.—In the December, 1922, issue of the U. S. Naval Institute PROCEEDINGS, an article on life insurance written by Edward L. Webb has been read with much interest, but as an officer of the army who is required to purchase life insurance and not sell it, I desire to take exception to a statement made on page 2112, in which the writer attempts to justify the rating up of naval officers as well as army officers by the insurance companies of this country.

Mr. Webb quotes figures as given in table 3 showing that the actual mortality to the expected was 68 per cent in the years 1917-21 inclusive, and compares this to the average of 95.8 per cent for the graduating classes of the U. S. Naval Academy from 1860-1916. This comparison is illogical and unfair in that the high mortality of fifty years ago was averaged in table 2 while it was disregarded in table 3. It is a recognized fact that the actual deaths to the expected has shown a constant reduction during the past fifty years, and if the author had used the life insurance data for civilian risks over the same length of time as that used for the graduating class at Annapolis, he would have found that there was not 27 per cent difference. The average of the last twenty-five classes at Annapolis gives practically the same percentage of actual mortality as that shown by table 3. While these are not directly comparable since table 3 shows the deaths for varying ages over a short period of time and the twenty-five-year average of table 2 gives information regarding approximately constant ages over a long period of time, still they should approach each other.

This letter is not written through any feeling of antagonism, as the article was well presented and is of the type that could be beneficial to all officers of the army and navy, yet it is felt that the propaganda of the insurance companies of America in rating up service risks is unwarranted and not justified by any statistics. In fact the writer recently had the pleasure of forcing a standard company to reduce his premium to that of a civilian policy holder after it had been rated up five years.



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SUBMARINE TENDERS AND SUBMARINES OF COMBINED FLEETS AT ANCHOR, BALBOA, C. Z.

PROFESSIONAL NOTES

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GENERAL ARRANGEMENT

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GREAT BRITAIN

BRITISH ADMIRALTY IS FIRM AGAINST FURTHER NAVY CUTS.—London, March 12.—The navy estimates for 1923-24 were presented in the House of Commons today by Lieutenant-Colonel Amery, First Lord of the Admiralty. The respective strengths of the British, American and Japanese navies were compared and the declaration of the Admiralty included an emphatic restatement on the maintenance of a one-power standard as the irreducible minimum below which it would be absolutely impossible for the British Empire to allow its naval strength to descend.

The First Lord believed the House would agree that even in a time of the most profound peace it would be impossible for Great Britain to be obviously and demonstrably inferior to any other power, however friendly. He maintained that with a view to preserving good understandings with America and Japan even the one-power standard had not been interpreted in any spirit of keen jealousy or competition.

The admiralty, he said, had undertaken a grave responsibility gratuitously in reducing to dangerous minimum before the Washington treaty had been ratified by all the signatories and he hoped that this earnest of Great Britain's good will would prove a determining factor in securing not only ratification but full and effective execution of the treaty by all concerned.

The First Lord pointed out that neither the United States nor Japan had reduced the personnel of their navies on such a large scale as Great Britain and that until Great Britain's two new battleships were completed

Official Photograph, U. S. Navy
SUBMARINE TENDER AND SUBMARINES OF COMBINED FLEETS AT ANCHOR, BALBOA, C. Z.

four years hence she would possess only one post-Jutland ship, the *Hood*, as against America's three and Japan's two, while of ships over 30,000 tons Great Britain would have only one as against America's ten and Japan's six.

Arguing that Britain's superiority in light cruisers was justifiable because of the extent of her empire, he asserted she was markedly inferior in destroyers and submarines. Alluding to the naval visit to Rio Janeiro as an unqualified success, he hoped the British Navy would regain touch with the prosperous and progressive nations of the South American Continent.

Colonel Amery also made reference to the creation of a naval base at Singapore, which he described as Britain's gateway to the Pacific and almost what the Panama Canal was to the United States. He insisted that the slow progress of this work was proof that there was no apprehension of difficulties in relations with Japan.

The gross estimates as laid down for the navy are £61,401,165, as compared with £69,476,657 for the previous year.

The British Army estimates for 1923-24, made public today, provide for £52,000,000, as against £62,300,000 for the previous year, a saving of more than £10,000,000.

The estimates include £28,132,000 for the maintenance of the standing army and provide for 170,800 men, excluding India, but including 10,500 Indian troops in the Middle East.—*Baltimore Sun*, 13 March, 1923.

IMPROVEMENTS AT PORT SAID.—Port Said is becoming more important as a coaling and oil distributing station. On the Asiatic side of the Suez Canal new docks are being built, and already ten firms of repute have their stations there. On the other side now stand a series of oil tanks at the disposal of the more modern shipping. One of the first operations following the recent decision to expend 100 million francs over the next ten years upon improvements, is to be to deepen the canal. It will then have a depth of 32 instead of 31 ft. at the end of the year, and as soon as possible will be increased to 35 ft. The banks, on the other hand, are to be 180 ft. instead of 135 ft. apart. The sea channel at the Port Said end of the canal will be deepened correspondingly, the work being more permanent by reason of the new breakwater being extended so as to prevent sand falling in from the north-east. At the Suez end, between Port Tewfik and the Red Sea, progress may not be so quick on account of difficulties with the Egyptian Government.—*Nauticus*, 3 March, 1923.

AIRSHIPS FOR THE NAVY.—That the Admiralty have long desired to restore airships to the Navy is well known. It was with the greatest reluctance that they consented in 1920 to the suspension of the service in deference to economy. These vessels were temporarily given up because the Air Minister declared that their retention would necessitate a considerable reduction in the provision of heavier-than-air craft, which the Admiralty rightly judged to be more indispensable to naval efficiency. In view, however, of the great importance which the Navy attaches to airships, it was obvious that means would eventually be found of restoring them to the service. This, it now appears, is to be done by means of the Burney scheme, details of which have been given in our columns from time to time. Briefly, the idea is to organize a commercial service of airships between Great Britain and outlying parts of the Empire. The ships will be designed and built under Admiralty supervision, thus embodying the characteristics necessary for war duty, though they will be normally employed for mercantile purposes. In consideration of their being held at the disposal of the Navy in an emergency, the Admiralty will pay a yearly subsidy of about £230,000. As this sum is rather less than the cost of one rigid airship of moderate dimensions, and as Commander Burney and

his associates propose to build a regular fleet of such vessels, all of the long-range type, which would be handed over to the Navy at the first threat of war, the money promises to be a sound investment from the national point of view. It is certainly a much cheaper way of obtaining an airship reserve than by leaving the Admiralty to build and maintain its own lighter-than-air craft. The Treasury, it is understood, is opposed to the arrangement in that it involves direct financial dealings by a Department of State with a commercial body, which is held to be undesirable, but little doubt is felt at Whitehall that this objection will be overruled by the Government considering the exceptional merits of the scheme from the standpoint of economy.

Whether the airship is really as safe and reliable a medium of long-distance transport as its champions declare it to be is still an open question, but the establishment of the projected service will determine this issue in the only practical way. If air liners are found to be carrying mails and passengers with reasonable safety and regularity between London and Bombay, their unique value for naval purposes will have been fully demonstrated. Up to now the case for the airship has rested more on promise than performance, and has been rather prejudiced by the extravagant claims of fervid partisans. For this reason the country would deprecate the expenditure of large sums of public money on the construction of airships before the type had been thoroughly tested, and hitherto there has been only one instance of such a vessel having successfully undertaken a long oversea flight.—*Naval and Military Record*, 7 February, 1923.

FUTURE OF THE SEA REGIMENT.—The amalgamation of the Royal Marine Artillery and the Royal Marine Light Infantry has been so often discussed during the last two decades that many will place no credence in the report that the fusion of the two branches of the sea regiment is now contemplated. It must be remembered, however, that amalgamation was considered by an official committee two years ago, and that, although it was then decided to take no action, statements issued at the conclusion of the deliberations left the impression that the decision was not final.

It is therefore not unlikely that the possibility of effecting economy by the amalgamation of the two branches is being seriously considered. The suggestion that such a change is probable is causing considerable anxiety among those who are opposed to alteration in the constitution of the corps, and fears are entertained, especially among old Royal Marine officers, that should amalgamation be effected it will be the first step to further drastic reductions and possible extinction in the near future.

The corps has on many occasions been described as the Cinderella of the service, and it is thought that those who are bent on cutting down the Navy votes hope to achieve their object by replacing Royal Marines by naval ratings in the gun-turrets of our warships. The doubt as to the fate of the Royal Marines will give added interest to the First Lord's statement when he introduces the navy estimates.—*Navy and Military Record*, 21 February, 1923.

GREAT BRITAIN'S NAVAL BASE AT SINGAPORE.—An interesting sidelight on British naval and commercial policy is given by a reference of the First Lord of the Admiralty in submitting the budget to Parliament, to the building of a naval base at Singapore. He described that place as Britain's gateway to the Pacific, and almost what the Panama Canal was to the United States. He insisted that the slow progress of this work was proof that there was no apprehension of trouble with Japan.

The international agreement reached at Washington respecting non-fortification of Pacific insular bases included Hong Kong, which had been the principal British stronghold in the Orient. To rectify this deficiency respecting protection of her huge commercial interests in China, Britain has merely to step back a short distance to Singapore, and there construct an adequate naval base of the first class.

The non-fortification restrictions of the Washington treaty hit America much harder. We, too, have large interests in the Orient, and they are likely to become of greatly increased importance with a normal expansion of our export trade. The Chinese market is the greatest free one in the world. The competition for that market will be an outstanding feature of trade development in this century. Britain, Japan, France, and other countries will be favored by strongly fortified points of support close to the area of trade competition. This is denied America. She can have no such outpost, notwithstanding her possession of islands so extensive, well located and populous as the Philippines.

Quite recently the Department of Commerce, in its official weekly publication, called attention to the need of establishing a commercial outpost in the Philippines if our merchants were to be placed on an equal competitive basis with foreign traders. The futility of establishing such a commercial outpost will be apparent to anyone understanding that economic competition is the most fruitful cause of war. Just so soon as our outpost became of sufficient commercial value seriously to affect the prosperity of our commercial competitors for the Chinese markets that outpost would be taken from us, for the simple reason that we could not defend it.

Naval strength and prosperity derived from overseas commerce go hand in hand. Centuries of human experience demonstrate this beyond a shadow of doubt. The British naval base at Singapore is equally a girder in Britain's commercial structure. That we are denied a corresponding commercial advantage is one of the many liabilities that must be charged up against our notable diplomatic defeat at the Washington Conference. —*Army and Navy Journal*, 17 March, 1923.

FRANCE

FRENCH NAVY NOTES.—Admiral Salaun (born in 1866), now the senior French flag officer, will this year relinquish command of the Mediterranean battle squadron, that will in July next reach its full battle strength, 24,000-ton *Bretagne, Provence, Lorraine*, with ten guns of 13.4-inch with post-war ammunition; 23,500-ton *Paris, Bart*, and *Courbet*, with twelve 12-inch weapons; three 27-knot cruisers, and a swarm of torpedo craft and seaplanes. This battle force has been modernized in every way, and has had the benefit of considerable sea practice during the last two years under a pushful and progressive leader, imbued with the spirit of action and a believer in the value of night tactics and of submarine and aerial weapons. Untiring effort has made it relatively to its size the most powerful force in existence.

From recent detailed explanations by Minister Raiberti in the Chamber, the loss of the battleship *France* does not point to inefficiency and neglect, but to over-confidence and bold training methods.

* * * * *

The Washington farce will, it is officially confirmed, be ratified by the unwilling Chambers at the express demand of President Poincaré, and without any public discussion, so as to avoid the risks of offending the susceptibilities of those who treated France unfairly. In sober and courteous language the right of France will be vindicated to keep the fleet

of her traditions and overseas responsibilities, all the more so as she has led the pace in the disarmament line with her discarding of her formidable Normandies' squadron, and is even prepared to totally suppress her war fleet if the virtuous protagonists of Panama Canal limitations are prepared to do likewise. It will be a purely academic affair, since battleships alone are limited, and France has no intention of constructing any. The elaborate and precise figures which the Paris Admiralty has supplied as to the cruisers and flotillas that are to be built within the next twenty years similarly have only paper value, and form at the most a basis for the ship-building efforts of the next few years. Program-making is a well-known *specialité* of Rue Royale, but experience shows that the fate of every program is to be abandoned after a few years' spasmodic attempts. Moreover, the naval science is just now undergoing too many changes to enable our experts to see with any accuracy into the future.

The principal effort will be made in the air, and no wonder. The flying machine is an amphibious fighter, the twofold instrument of land and sea supremacy. So long as France is supreme in the air she will be secure against attacks from any comer. Recent experiments have called attention to the frightful character of wholesale destruction which war in the air will present in the next contest. Etampes tests, for instance, have shown the possibility of controlling aeroplanes from shore or ground stations, and thus of hurling a few tons of explosives and steel over hostile ships or towns at great distances. Technical researches and realistic experiments are taking place in French laboratories and aerodromes, at the same time as training is being kept brisk in all aviation centres. Under the energetic impulse of Admiral Lanxade, naval aviation is getting more and more alive, as demonstrated by compared statistics just published by Rue Royale. Defensive aerial squadrons flew 1,700 hours from July to December, 1922, while *ecoles d'aviation* registered over 3,000 hours in the air. Considerable reinforcements are being prepared for the aerial formations of the Navy.

* * * * *

The need of light cruisers is felt acutely in the service, especially since the Memel and Smyrna incidents, that called for a sudden reinforcement of French squadrons in distant waters. Obsolete 10,000-ton cruisers of the *Montcalm* class, on the point of being sold out of the service, have been hurriedly patched up for commissioning, and the 18,000-ton *Diderot* has hoisted anew the pennant for duties in the Channel; but it is felt that such deep-draught 17-knot ships represent to a great extent a waste of money and personnel at this stage, as they are little more than make-believe, vulnerable targets to bombs and torpedoes and essentially of the class the late Lord Fisher depicted as "able neither to run nor to fight." The splendid, unprecedented cruiser fleet of Great Britain is being universally admired as a perfect instrument of diplomacy, combining number, speed, and individual up-to-dateness and fighting power. Relatively to their size nothing better was ever made than the British *C* and *D* classes of light cruisers, at least for fleet duties and for service in European waters, for the reason that they carry the 6-inch caliber, that is the ideal weapon for action either against land fortifications or against hostile flotillas, together with a formidable torpedo armament.

The 8,000-ton and 35-knot *Duguay-Trouins*, to be launched in a few months' time at Lorient and Brest, are certainly splendid units, in some respects the best cruisers yet designed, notably for speed and all-round defensive qualities. Yet they are being criticized as either too large or too small, too large to mount nothing heavier than 6-inch guns, and too small to comfortably carry the imposing ensemble of their paper qualities, and not large enough for independent work in distant oceans, while being

too heavy and too expensive for those police and flag-showing duties in European seas that require number as well as individual strength. Between the contretorpilleurs of 2,450 tons, just ordered, and ocean-going cruisers of 8,000 or 10,000 tons there is room for a medium-sized light cruiser of some 5,000 tons, to mount 6-inch weapons, whereas the largest light cruisers ought to have 7.5 or heavier guns. It is the opinion of many experts, especially among those who witnessed the tremendous waste of tonnage committed by ex-Chief Constructor Bertin in the *croiseur-corsaire* and *croiseur-cuirassé* series, that light cruisers ought to have the heaviest gun compatible with their displacements, and that the French Navy would act wisely in reviving in a modern form the 4,700-ton *Admiral Charner* type of light armored cruiser, that proved so tough in the Dardanelles.

The *sousmarins de grande patrouille* of the *Requin* class, of which four are building at Cherbourg, one at Brest, and the other at Toulon, will be powerful units of their class, and mark comprehensive progress over the *Fulton* class of pre-war design, considerably modified since. They will have a length of ninety meters, as against seventy-five, and a higher all-round standard of robustness with 200-ton extra-displacement, 1,100-1,400 tons (instead of 900-1,200). France experienced plenty of trouble with her submarine motors, but the hard work of researches and experimenting conducted since the war by various private firms, especially Le Creusot, have yielded results, and this time reliable and economical working under war conditions are confidently expected. With a view to leaving nothing to chance, the motors to be fitted are of low nominal power, are free from any innovation of an experimental nature, and are simply the reproduction with greater all-round robustness of well-studied and perfectly successful motors that have been in service for two years. Therefore more longevity is expected from these boats than was obtained in the case of the fragile and wasteful 500-ton *Laubeufs*, which were at first fitted with Diesels. There is no make-believe in them, no high speed (only 16 knots), no heavy armament, but substantial qualities for ocean offensive against heavily-armoured opponents: viz., habitability, seakeeping power (thirty-day cruising radius), and a good supply of 22-inch torpedoes, which eight tubes can be concentrated against a single target (four to six at a time).

The six coastal submarines of 600 tons of the 1921 program have only just been ordered, two at the Chantiers de la Loire, two at the Chantiers Normand at Hâvre, and two at Le Creusot (Chalon-sur-Saône). The Nantes-St. Nazaire yards are receiving submarine orders for the first time, which means a substantial addition to France's capabilities for submarine construction. The emulation between arsenals and private yards might be a source of higher constructional efficiency but for the unceasing meddling and unbusiness-like methods of Rue Royale *paperassiers* that paralyze alike state constructors and civilian *ingénieurs*.

* * * * *

Although French opinion is dead against the battleship in any shape or form, the Admiralty has left the door open for battleship construction, and State constructors in their leisure time have already prepared various plans of 30,000 and 35,000-ton super-dreadnaughts at the same time as gardecôtes of 18,000 and 10,000 tons of both the surface and semi-submersible types, all *en théorie* to be insubmersibles. Researches, studies, and experiments are continuing, and for some time past there has been a tendency to reverse the early opinion that a 35,000-ton displacement is inadequate as a margin for the production of sufficiently powerful and reasonably safe capital ships. Artillery experts see the key to superior efficiency in the adoption of calibers under 16-inch, volume of fire being in their opinion and in the light of Jutland the deciding element of

superiority, especially against post-war ships that are bound to be lightly protected under thin armor, since nowadays targets at sea must be tortoise-like to be to some extent proof against shells, bombs, and torpedoes likely to come from every side and direction. For artillery duels—but they can be little more than passing incidents in sea contests—an up-to-date reproduction of the 1914 *Tourville* type (35,000 tons, complete steel carapace, with special bulges and caissons, 23 knots, sixteen 13.4-inch long caliber guns with new shells, twenty quick-firers with chemical projectiles, twelve anti-aerial weapons, etc.) would out-range and throw into obsolescence the mightiest mastodons now afloat, and notably the 16-inch American *Colorados*. From what has leaked out of long-range experiments at Gâvres and elsewhere, the ballistic science is now undergoing a process of evolution, and the destructive power of shells is wonderfully increasing, as is also the practical range at which actions can be fought. Well-trained, aerially-controlled long-range coastal batteries will tomorrow have a say in deciding encounters, as it is the way of all great naval battles to take place in proximity to the land.—J. B. Gautreau in *Naval and Military Record*, 14, 21, 28 February, and 7 March, 1923.

PARIS LIMITS FLEET TO TREATY TERMS.—Paris, March 8.—The Government's naval program was introduced in the Chamber of Deputies today by Minister of Marine Raiberti with the remark that the program "was conceived within the framework of the Washington accords, so that the Government cannot give stronger proof of its intention to obtain their ratification."

"The program," continued the Minister, "does not fix the number of units, as that may vary with the needs of the national defense, but it fixes the tonnage for each category.

"For battleships it provides for 175,000 tons, but the preamble explains that the Government has no intention of constructing to that extent at present, for these reasons:

"Firstly, the type of capital ship has not been settled upon; secondly, the fleet must be in accord with our financial means, and France has not the means to construct a fleet of capital ships and a fleet of light units.

"We must choose and we have chosen the latter.

"The fleet must be in keeping with France's policy, which is pacific, and therefore she needs a fleet assuring the defense of the coast and the protection of maritime communication. We need light cruisers, torpedo-boat destroyers and submarines. Only unforeseen circumstances will cause us to build battleships."

Deputy Locquin sought to establish that the United States Navy was beginning to increase the tonnage of its small units to bring them in proportion with the capital ships. Deputy Sevene, a naval captain, pointed out that it was France who demanded that the Washington agreements maintain freedom of construction as regarded the small units.

"We are not obliged to share your optimism," replied Deputy Locquin. "Furthermore, the Washington accords have not yet been ratified and nevertheless we are engaged in the direction of limitation of armaments."

The Minister of Marine reiterated that the Government intended that the treaty should be ratified.

Deputy Locquin said the slowness of the ratification process had furnished arguments for Americans in accusing France of imperialism.

"America's failure to ratify the peace treaty was also a great vexation for France," injected Deputy Balanant.

During the discussion it was stated that France would remain within the the terms of the Washington accord in constructing a battleship of 25,000 tons to replace the battleship *France.—Philadelphia Public Ledger*, 9 March, 1923.

GERMANY

GERMAN ADMIRAL'S APOLOGIA.—The latest issue of the *Marine Rundschau*, Germany's official naval monthly, contains an important article by Admiral von Ingenohl, replying to the strictures passed upon his war leadership by the German staff history of the campaign at sea. He has been charged by the authors of that work with failing, on more than one occasion, to give adequate support to detached forces sent out on special missions, such as coastal bombardments and mine-laying expeditions, and with having interpreted too literally the Kaiser's notorious "order of operations," which virtually banned any form of fleet activity that entailed the risk of losing ships. Admiral von Ingenohl, it will be recalled, was commander-in-chief of the High Sea Fleet down to the beginning of February, 1915, when he was superseded in consequence of the Dogger Bank defeat of January 24.

We are bound to say that his apologia in the *Marine Rundschau* is not very convincing. The main fleet, he declares, had to be kept intact in deference to the express command of the "Supreme War Lord." At that early period of the war hopes of a speedy and decisive victory in France were still cherished at German G. H. Q., in spite of the reverse at the Marne. There was, consequently, no motive for risking the fleet, which was expected to be a useful pawn in the peace negotiations. Moreover, the Kaiser's resolve to avoid a general action at sea was fortified by the belief, based on dispatches from the German minister at Copenhagen, that Britain, in the event of a serious reduction of German naval strength, would compel Denmark to abandon her neutrality. "It was particularly with a view to this danger that the higher military command opposed any action at sea that was liable to involve the fleet in serious loss."

According to Admiral von Ingenohl, there was a further reason why the battle fleet did not always support ships that were sent to raid the English coast. If the fleet put to sea at all it would have to reckon with the chance of meeting the entire Grand Fleet, and it was therefore absolutely essential that it should include every effective fighting unit. Now, in the early months of the war the German main body consisted of only sixteen dreadnaughts (thirteen battleships and three battle cruisers), as against the British force of twenty-eight dreadnaughts. "But," writes the Admiral, "it was precisely at this time that our latest and most powerful ships; viz., the battle cruisers and the ships of the Third Squadron, were so frequently in need of urgent repairs to their boilers and machinery that it was a question of conducting light offensive operations without the support of the main body, or not at all."

This admission as to the frequent machinery breakdowns in the High Sea Fleet is significant. It confirms what Ingenohl's successor, Admiral von Pohl, wrote in his diary during 1915, that "this (the High Sea Fleet) is a queer sort of family. There is always something wrong, now with one and now with the other of them." On July 17, 1915, von Pohl wrote: "Now four ships all at once have failed, owing to engine defects. Among them is my own ship, *Friedrich der Grosse*." On July 19 he put to sea and had got as far as the Eider lightship when a number of ships developed engine trouble and he had to turn back. Admiral von Ingenohl himself now says: "Here and there in the staff history reference is made to repairs carried out on the dreadnaughts, but a tabular statement of all the normal and emergency repair work done on our ships, especially the dreadnaughts, during the first half-year of the war would be very useful, giving as it would the first complete picture of the readiness of the fleet for sea or battle at this period." It is evident from the testimony of Admirals Ingenohl and Pohl that the High Sea Fleet was less efficient as to material than German propagandists have endeavored to prove.

The impression conveyed by Admiral von Ingenohl's articles as, indeed, by the German staff history itself, is that neither the Kaiser nor any of his advisers had the faintest conception of what sea power really meant. They had been so absorbed in the work of building up a great fleet that they omitted to study the first principles of naval strategy. The "order of operations" issued at the beginning of the struggle, forbidding any movement likely to jeopardize important ships, was in itself a veritable recipe for defeat.

Whether the naval commanders, if left with a free hand, would have adopted a more vigorous policy is a question that will probably always remain open. It is certain, at any rate, that Admiral von Ingenohl strictly observed the Kaiser's "safety first" order both in letter and spirit. The same might be said of his successor, Admiral von Pohl. At no time throughout the war did the High Sea Fleet deliberately court a general action, even the Jutland encounter being inadvertent on the German side. And the same timorous policy was pursued by the German forces on the Flanders coast, as readers of Admiral Bacon's book, *The Dover Patrol*, will appreciate. It is, therefore, not surprising to find even German historians admitting that their navy failed to come up to expectations when subjected to the acid test of war.—*Naval and Military Record*, 21 February, 1923.

JAPAN

REORGANIZATION OF NAVAL FORCES.—The reorganization of the Japanese naval forces to conform with the reduction of material consequent upon The Washington Treaty has involved the abolition of the Third Fleet. The commissioned formations now stand as follows:

First Fleet: First Battle Squadron, *Mutsu, Hiuga, Ise, Nagato;* First Light Cruiser Squadron, *Kuma, Tama, Ohi;* First Destroyer Squadron, *Tatsuta* and four flotillas; First Submarine Flotilla; First Air Fighting Squadron.

Second Fleet: Second Battle Squadron, *Kongo, Hiyei, Kirishima;* Second Light Cruiser Squadron, *Kinu, Yura, Nagara;* Second Destroyer Squadron, *Kitakami* and four flotillas; Second Submarine Flotilla; Second Air Fighting Squadron.

Only seven of the ten capital ships which Japan retains in her post-treaty fleet are to be kept in full commission. The battleships *Fuso* and *Yamashiro* and the battle cruiser *Haruna* are apparently in reserve or manned with reduced crews.—*Naval and Military Record*, 21 February, 1923.

TYPES OF TORPEDOES.—The following are details of the type of torpedo now used in the Japanese Navy:

Total length with war head	6.70 meters
Do. do., practice head	6.86 meters
Length of war head	1.37 meters
Pressure	126.6 kg/cmq.
Explosive charge	270 kilos
Range at 22 knots	18,290 meters
Range at 45 knots	4,023 meters
Heater	Water, 43 liters Fuel, 7 liters
Maximum depth	6.70 meters
Caliber	533 m.m.

For the use of torpedo-planes there is a special torpedo of 457 mm., with a range of 4,000 meters at 29 knots, and of 2,500 meters at 41 knots. Both the above torpedoes are of the Whitehead model. Other types,

however, have been developed in Japan, where marked interest has always been taken in this weapon. The Japanese Navy was the first to experiment with a petrol-driven torpedo (of 23.5-in. diameter, manufactured in 1910 at Kure), and other novel types are reported to be in existence, though they may not be successful enough to justify their adoption for general use.—*Naval and Military Record*, 28 February, 1923.

UNITED STATES

A CORRECTION:—Attention has been called to an error in the description of the *Lexington* and *Saratoga*, on page 331 of the February issue of the Institute PROCEEDINGS. The speed of these ships has not been reduced as stated in the article reprinted from the *Scientific American* for December, 1922, but remains at 33 knots plus.—Editor.

NAVY SERIOUSLY DEFICIENT.—Serious deficiencies of the United States Navy under the 5-5-3 ratio adopted by the Washington Arms Conference will be called to the attention of the Sixty-Eighth Congress as soon as it convenes, it was learned officially at the Navy Department.

An expert survey of the international naval situation showing the American sea power to be between 300,000 and 400,000 tons short of its proper standing under the Conference agreement has given impetus to the work already under way on the program Secretary Denby is expected to submit, covering both ships and personnel.

With official opinion practically unanimous that the most pressing need of the Navy is for modern scout craft, it was predicted that immediate authorization would be urged for fast cruisers and submarines with additional tonnage of these types to be added annually for a definite period of years.

High naval officials have suggested that the "immediate program" comprise at least eight modern cruisers to supplement the ten of the *Detroit* class now under construction, three scout and three fleet submarines of 2,500 tons and three mine-laying submarines. At least two airplane carriers of the *Langley* type in addition to those already under way, also are included among the fleet units deemed immediately necessary.

Second only in importance to the need for auxiliaries, in the opinion of officials, is that for adequate personnel. This was brought home forcibly, it was said, in the gathering of the battle fleet for maneuvers when it was found necessary to order all the apprentice classes from their schools to the ships in order that the vessels might be efficiently handled. The apprentice courses were only three-fourths completed, when the students were taken from their studies.

Estimates of the deficiency of personnel under the present 86,000 authorization ran between twelve and twenty per cent with most officials holding the view that about 108,000 officers and men will be required to bring the fleet up to the most efficient standard.

The naval programs of the other parties to the 5-5-3 ratio will make the deficiencies of the American Navy more pronounced if action to correct them is delayed, according to officers who have analyzed information recently acquired on this subject. Great Britain lists fifty-six modern cruisers built and building, aggregating 296,000 tons, Japan twenty-five or 157,000 tons and the United States ten or 75,000 tons—of which three are for delivery at comparatively early dates.

Naval officials generally are of the opinion that the modernization of the capital ships, authorized by the last Congress, will place the first-line ships on a parity with any in the world and are prepared to concentrate on building up the auxiliary forces.—*Boston Evening Transcript*, 12 March, 1923.

SIX FLEET BASES SELECTED BY NAVY.—Development within a definite period of four continental and two "advanced" fleet bases has been decided upon by the Navy Department as an integral element of the national naval defense program.

The bases, selected by a special board on shore establishments, headed by Rear-Admiral Hugh Rodman, will be given a certain "priority" in development which has been determined after a study of every strategic consideration.

Under this schedule, they will be developed in the following order:

San Francisco—A base capable of "serving the entire fleet in all respects."

Puget Sound—A base equal to that at San Francisco and to include existing naval stations at that section.

The New York-Narragansett Bay—An all-fleet base to include stations now located in New York Harbor, Long Island Sound and Narragansett Bay, with construction of a channel through Hell Gate to permit ready passage of the largest vessels from the Sound to New York harbor.

Chesapeake Bay—An all-fleet base to include existing stations on the lower bay.

The outlying bases are the Panama Canal Zone and the Hawaiian Islands, the board having excluded from its recommendations "all shore stations in insular possessions where, under the limitation of armament treaty, the status quo must be maintained."

Limitations of specified types of ships under the treaty has been held by naval experts to necessitate certain modification in the position given these bases in the general strategic plans of the United States and to require a redrawing of plans for their development. Apparent decision of some foreign governments to press forward construction of the fast light ships which were not limited under the treaty is said to have directed attention to the importance of completing the program for the Canal and Hawaiian defenses in order to "balance" the scale.

Detailed plans and estimates of the cost for each base will be presented to the next Congress, along with recommendations for a building program designed to bring the navy up to its standard under the five-five-three ratio.

While completion of the fleet bases will be made the first consideration of the Navy Department, it was said officially today that preliminary work would be undertaken at the same time upon plans for the development of subsidiary shore stations. These include the various navy yards, submarine and destroyer stations, naval air stations for coast patrol duty, training stations and ammunition, ordnance and fuel depots.—*Baltimore Sun*, 11 March, 1923.

NOTES OF FLEET MANEUVERS.—Balboa, March 17—In the last two days the United States fleet has demonstrated to the congressional party that it is making the most of every dollar appropriated for it. Tactical maneuvers a hundred miles off Balboa, including a rehearsal of the Battle of Jutland, showed ships and men being used to the best advantage. Commencing today, after returning to port, some members of the party said it was unfortunate funds for sea practice are so limited. Appropriations by the last Congress for this purpose, totalling $22,000,000, permit battleships and destroyers to steam only four and seven-tenths days a month, as compared with $30,000,000 three years ago, permitting steaming ten days a month. Officers said scant appropriations are especially unfortunate at this time when approximately sixty per cent of the enlisted men are recruits. A single battleship with the fleet having a complement of

1,200 men has had 1,285 men pass through it in the last year. With new men and sea practice limited gunnery skill is seriously impaired. A sudden war would place the fleet at a serious disadvantage. The party inspected the fortifications of the Canal Zone today, and the members commented on the advisability of installing a battery of sixteen-inch guns on Toboga Island to strengthen the defenses of the Pacific entrance to the Canal.—*Boston Evening Transcript,* 17 March, 1923.

Aboard U. S. S. *California,* Panama Bay, March 19 (By Radio).—The necessity for a preponderance of light cruisers, destroyers and aircraft to protect the battle fleet was strikingly illustrated, in the opinion of naval strategists, by the results of two destroyer attacks on the Pacific Fleet today, which were witnessed by Secretary Denby and Representatives.

While neither assault carried any element of surprise, two superdreadnaughts were theoretically put out of action during each phase of the maneuvers.

In the first attack nineteen destroyers attached to the "blue" fleet came over the horizon behind a smoke screen and launched fifty-seven torpedoes, two finding a mark on the *Idaho,* third ship of the "red" fleet, and one striking the *California,* flagship of Admiral Eberle's Pacific Fleet. Eighteen seaplanes sent out to bomb the destroyers failed to arrive before the torpedoes were launched. The battleships opened simulated fire on the destroyers, but officers said the attacking force was so well protected by the smoke screen that it did not afford much of a target.

During the second attack, which was staged without a smoke screen, nineteen destroyers again participated. They laid down a checkerboard of fifty-seven torpedoes, forcing the "red" fleet to deploy from its battle line. Two torpedoes struck the *Tennessee,* second ship in line, while another hit the *Idaho,* third ship.

Officers judged both out of action, the battleships, because of the haze, having difficulty in getting the range of the destroyer.

During each phase the "red" fleet had the aid of three light cruisers, which, however, were not protected by destroyers. Seaplanes did not figure in the second phase.—*Baltimore Sun,* 20 March, 1923.

MERCHANT MARINE

BOARD TO ADOPT NEW POLICY.—In view of the definite adandonment of the ship subsidy bill, Chairman Lasker after a conference with President Harding announced last Monday that "the Shipping Board has a very definite, practical program for the Government-owned merchant fleet which will be announced within a few days. It will be found to be as novel as it is surprising." Mr. Lasker described the program as a "radical departure" from the policy now being pursued, but declined to give any detailed information regarding the intended move.

The new plan will be announced promptly as it is only fair to private American shipowners that they should know as soon as possible what the Government's policy is to be. It is generally believed that a withdrawal of part of the Fleet Corporation's tonnage from the least paying routes is contemplated as well as modification of the M O 4 agreement. A change in the Board's ship sale policy is also anticipated.—*Nautical Gazette,* 3 March, 1923.

BOARD AT WORK ON NEW PLAN.—Chairman Lissner of the Shipping Board's committee which is drafting a plan for the disposition of the Emergency Fleet Corporation's tonnage, has appointed an advisory committee of ten official experts to work out the details of the Government's new shipping policy. The advisory committee includes President J. B.

Smull and Vice-president W. J. Love, J. E. Sheedy and William B. Keene, of the Emergency Fleet Corporation; S. H. E. Freund and Chauncey Parker, of the legal department; Colonel J. W. McIntosh, director of finance; Sidney Henry, director of sales; R. T. Merrill, chief of the division of research, and J. A. Robinson, assistant to Mr. Smull.

It is Chairman Lissner's intention to have the main committee meet twice weekly with the advisory committee and to speed up the formation of the general plan. Later on private ship operators and other interested parties will be called in for an exchange of views on the subject of the future of the American merchant marine.

Commissioner Lissner's committee is now engaged in a careful check of the financial status of every Government vessel now in operation, with a view to determining how much their voyage losses were and to ascertain if any netted a profit at any period during their service. A preliminary survey of the financial record of Government tonnage already made indicates that in some instances vessels reported income in excess of expenses during some months, but on the year's account the receipts did not meet expenses.

It is generally believed that the Shipping Board will ultimately decide to scrap a considerable portion of its fleet and to charter the remainder to managing agents on a flat rate basis with some special form of compensation for the operation of ships on unprofitable routes. The Government's fleet consists today of 1,385 vessels of all types. It is composed of forty passenger ships, eighty tankers, twenty-four tugs and 1,241 freight vessels. The Board is now operating in its freight service about 346 cargo carriers. Of the remainder 400 may be found only fit for scrapping, while 320 are lake type boats of less than 4,200 deadweight tons. These would probably prove attractive to foreigners for service in the Mediterranean and in the Baltic.—*Nautical Gazette*, 17 March, 1923.

BRITISH GOODBYES TO OUR SHIP SUBSIDY.—Predictions of failure made long ago by certain British editors in their comment on America's attempt to build up her merchant marine are recalled in connection with the final rout of the Ship Subsidy Bill and the decision to place 1,700 vessels on the market. This is the end of the "vastest and most futile attempt in history to create arificially a new industry," remarks the London *Daily Chronicle*, which believes it to be the "greatest recorded failure of the protectionist theory in practice and consequently the greatest triumph for free trade in America." Besides the colossal money loss this paper mentions with no apparent regret the "collapse of a dream which would have put the American flag in every port in the world and on all its seas, the failure of a grandiose national effort in the furtherance of which the Government strained to the utmost its influence and resources and threw into the scale its official authority and unique propaganda." The *Chronicle* advises us further that:

"The dream has been shattered finally by the American taxpayer, but it is true that the causes of failure are economic, not political. They are simply these: That America could not build ships as cheaply as we could or as well; that she could neither run them nor man them as we do; that it is beyond the power of our Government or of any Government to create a carrying trade artificially; that Washington has made the same mistake with shipping that Moscow has made with industry.

"Naturally British shipping will benefit. So long as these American ships were run as they were being run for the purpose of forcing an opening of doors for American traffic and not for legitimate profit, and so long as the American citizen was patient enough to pay out of his

pocket for the experiment, it was useless to hope for recovery in the shipping trade.

"A new chapter now opens for the British Mercantile Marine. At the same time a chapter closes in economic history that has its lesson, not only for America, but for all who have the intelligence to read it."

But there is no rejoicing or grandiloquent "I told you so" in the tone of the London *Daily Telegraph*, which declares that the whole record of nationalized shipping is one of failure, and it adds:

"If any people could have succeeded, the Americans with their acumen and commercial keenness would have done so.

"What the next step will be, now that the Ship Subsidy bill has been dropt, is uncertain. It may be that these ships will have to be got rid of at bargain prices as opportunity offers, and in that event the loss may come to be regarded in much the same light as we look upon the hundreds of millions we spent on the prosecution of the Great War. We are convinced that it was worth the price, and the American people, having shared even such sufferings as we had to endure from bombardments and air raids, may come to much the same resigned state of mind as we have reached.

"In any case we may signal this message across the Atlantic: The American shipbuilding effort, a splendid vindication of the spirit of the people of the United States, will never fail to evoke feelings of gratitude and admiration in this island country."—*Literary Digest*, 17 March, 1923.

EFFICIENT MERCHANT MARINE VITAL AS A NAVY RESERVE.—It is to be profoundly hoped that some way will be found to preserve an American merchant marine in spite of the failure of the Ship Subsidy bill. Merchant ships and merchant seamen constitute an indispensable war reserve for the Navy.

Apparently the Administration intends to continue the operation of certain government-owned ships under the Shipping Board. Of course, this must be done at a loss more than sufficient to cover the expenses of a subsidy. It amounts to a subsidy in another form and is amply justified for the sake of naval preparedness.

But government operation at a steady loss is rather a precarious basis for a merchant marine. Any Congress may decline the necessary appropriations and terminate the whole arrangement. Some form of privately-owned ships is essential to a permanent institution.

It is understood that the placing of a number of American ships under the Panama flag is contemplated by their owners as the only basis upon which they can operate at a profit. This is better than having a deficiency of American-owned ships available in case of war. But such a solution of the difficulty fails to meet the needs as to reserves of personnel, since most of the crews will become foreign.

The best alternative to provide both ships and personnel seems to lie in an extension of favorable regulations and laws for coastwise service from which foreign vessels are now excluded. Such coastwise traffic should be extended so as to include not only commerce between ports on a home coast and intercoastal commerce, but also traffic between the United States and all its colonial possessions, not excepting even the Philippine Islands. Moreover, the coastwise trade, as so extended, should be given preferential rates for passage through the Panama Canal. In this way a large American merchant marine could be built up and placed on a sufficiently permanent basis to meet the necessities for a reserve for the national defense.—*Army and Navy Journal*, 17 March, 1923.

SHIPPING BOARD TO RECONDITION FOUR LINERS.—While it has been rumored for some time that the ex-German liners *Mount Vernon* and *Agu-*

memnon were to soon undergo reconditioning, the recent announcement from the Shipping Board that actual authorization has been given for the work, has served to dampen the pessimists who have been predicting that these much-needed contracts would fail to materialize. But this was by no means all of the good news handed out by the Board, for, in addition to the ships mentioned, it is stated that the *America* and *President Buchanan* are also to be put in first-class condition, to compete successfully with our shipping rivals, under the management of the United States Lines.

Though the Board has been somewhat reticent in taking the people into its confidence as to its plans for the general protection of the American Merchant Marine, now that the Shipping Bill has been shelved, there is strong reason to believe, from the action taken in connection with these ships, that the policy finally decided upon will be in line with the widely expressed sentiment among American shipping men everywhere, that there shall be no let up in the fight for an adequate American representation in the lanes of ocean commerce.

When completed, these vessels will be operated by the United States Lines in the North Atlantic, and will run in conjunction with the *Leviathan* and *George Washington*.

The *Agamemnon* and the *Mount Vernon* will be converted into oil burners, and when finished will be the equals of any vessels afloat in point of equipment. The plans and specifications are now being prepared and call for the most modern furnishings. When put into operation they will carry approximately 900 first and second class passengers and 500 third class, with a crew of 550. These vessels are approximately 700 feet long, with a gross tonnage of about 20,000 tons and have a speed of 23 knots.

In addition to the *Agamemnon* and the *Mount Vernon*, the *President Buchanan*, formerly the *President Grant*, is to be reconditioned as an active ship of the highest type. She is a vessel of approximately 600 feet long, a beam of sixty-eight feet, and a tonnage of about 20,000. Plans and specifications have already been issued to the bidders, and bids for the work of reconditioning are to be opened about April 1. The plans contemplate additional boiler equipment, the installation of a fuel oil system and the reconditioning and overhauling of mechanical equipment throughout. With the installation of the fuel oil system she is expected to make 15 knots.

When completed, the *President Buchanan* will carry approximately 700 cabin passengers and 1,400 third-class passengers. The third-class accommodations will be the finest in the world.

Plans and specifications for the reconditioning of the *America* have been issued and bids will be opened for this work on March 9.—*Marine Journal*, 3 March, 1923.

TODDS TO BUILD NEW DRY DOCK.—The directors of the Todd Shipyards Corporation have approved the construction of a new dry dock capable of accommodating vessels ranging from 40,000 to 50,000 gross tons. The new dock will be one of the largest in the world and will be able to handle most of the great passenger liners.

The new structure will be built at Brooklyn, and dredging for the site as well as preliminary construction, will begin at an early date. Completion of this dock will give to the Todd Shipyards Corporation in Atlantic, Gulf of Mexico and Pacific coast ports a total of twenty-three floating drydocks and two graving docks—one of the largest aggregations of ship building and repair facilities possessed by any one firm in the world.—*Nautical Gazette*, 24 February, 1923.

ENGINEERING

RELATIVE MERITS OF THREE METHODS OF CHARGING BATTERIES.—As is generally understood, the constant-current method of charging both lead and nickel-iron batteries consists in connecting a variable resistance in series with the battery and connecting it to a charging circuit having any voltage higher than the full-charge voltage of the battery. The charging current is maintained virtually constant throughout the charge at the normal charging rate. This is accomplished by varying the resistance in series with the battery, adjusting it to give a current value slightly higher than the normal charging rate and, after the current has fallen off to a value below the normal rate, again adjusting it to a slightly higher value, thus maintaining an average equal to the normal charging current.

With a nickle-iron alkaline battery the charge is terminated when the voltage reaches approximately 1.85 volts per cell. In the case of a lead battery the charge is continued at the normal rate until free gassing begins, accompanied by a comparatively rapid rise of voltage, when the charging current is reduced to the finishing rate, which is somewhere between twenty-five per cent and forty per cent of normal, depending on the make of the battery. This results in simultaeous reduction of the battery votage, and the charge is then continued at the finishing rate until the battery voltage reaches a one-hour maximum as indicated by three half-hourly readings of equal values, the current being held constant, after which the charge is terminated.

In order to keep the charging current practically constant it is necessary to adjust the resistance at more or less frequent intervals, these intervals being dependent on the difference between the battery and the line voltage. With a battery having a voltage slightly lower than the line voltage, as, for instance, a battery of forty cells being charged from a 110-volt current circuit, it will probably be necessary to adjust the rheostat at half-hour intervals; but for a similar battery being charged from a 220-volt circuit adjustments may be made at very much longer intervals. Observations of gassing and readings of battery voltage must be taken at suitable intervals to determine the points at which to reduce the rate and terminate the charge.

The chief objection to the constant-current method is the necessity for keeping a competent attendant to regulate the current from time to time and take voltage readings. If he is not attentive to his work, the batteries under his care will probably be either overcharged or undercharged, and in either case their useful life will be shortened.

This objection to the constant-current method is not inherent in the constant-potential method of charging, the basis of which lies in the fact that a proper charge for any lead battery can be obtained by applying a fixed charging voltage of approximately 2.3 volts per cell.

In charging batteries by the constant-potential method the battery, without series resistance, is connected directly to a circuit, the voltage of which is maintained constant throughout the charge at a value determined by the number of cells in the battery. For lead batteries this voltage is ordinarily about 2.3 volts per cell and for nickel-iron batteries 1.7 volts per cell. In cold weather a somewhat higher voltage may be required. Under these conditions the time required for charging a battery which has previously delivered its rated output can be reduced to five or six hours in the case of a lead battery. Seven hours, however, is required for a total charge for a nickel-iron battery. This time is not changed regardless of the method of charging used, as the average rate of charge is equivalent to the normal rate. Owing to the fact that the battery voltage is low at the start of the charge, the charging current tapers, starting at a high value and falling off as the charge progresses. In the case of the lead battery

the initial inrush current is about four times normal, and it is about twice normal for the nickel-iron battery.

The constant-potential method of charging requires a definite constant charging voltage for each battery, which voltage seldom, if ever, corresponds to that of a power circuit. It is therefore necessary to install a separate power supply or provide some special means of obtaining the proper charging voltage. Where batteries of different numbers of cells are used, the problem is more complicated as a different charging voltage may be required for each battery.

In the case of lead batteries an objection to this method of charging is the fact that the capacity of all the conductors must necessarily be increased about 300 per cent in order to provide capacity for the inrush current, which lasts only a few minutes. All fuses or other overload devices must also have a capacity for the maximum current and thus be useless as a protection throughout the remainder of the charge.

By inserting a resistor in the battery circuit, this heavy initial inrush is cut down to the point where heavy leads, switching equipment and fuses are not necessary. This is known as the fixed-resistor method of charging, and retains the chief advantages of the constant potential method.

The chief advantage of fixed-resistor charging is that the expense of keeping a responsible attendant on duty is saved since no attention is required during the charge; and, as the battery automatically receives the proper amount of current at every stage of the charge, it receives better treatment than when charged by any method which depends upon the operator to adjust frequently the charging current at the proper value and to terminate the charge. This elimination of the human element is a strong argument for fixed-resistor charging with automatic ampere-hour meter cut-off, as the useful life of the batteries is probably shortened more often by improper charging than by any other cause.—F. LePort Spangler, *Electrical World*, 13 January, 1923.

STEAM FROM TWIRLING BOILER-TUBES.—Rotating boiler-tubes are a feature of a new high-pressure Swedish boiler. The motion throws the water into a tube-like shell and facilitates the generation of steam. Pressures in steam power plants have been constantly increasing. Knowing that higher steam pressures meant increased efficiency, with a corresponding saving of fuel, each generation has gone as far in this direction as seemed advisable. In recent years the rapidly increasing cost of fuel has been paralleled by a corresponding increase in steam pressures until today a pressure of 250 pounds per square inch is common practise in large central stations, while a few American plants are operating in the neighborhood of 500 pounds. But all of these pressures sink into insignificance when compared with the 1,500 pounds which the new Swedish boiler, the "Atmos," is designed to carry. This boiler, as described in *Power* (New York) by Edvin Lundgren, a consulting engineer of Stockholm, Sweden, departs radically from all previous designs. Perhaps the most surprising thing about it is the generation of steam from the tube-like shells of water produced centrifugally by rotating the boiler-tubes rapidly on their axes. Describing this boiler, which was designed by J. V. Blomquist, another Swedish engineer, Mr. Lundgren says:

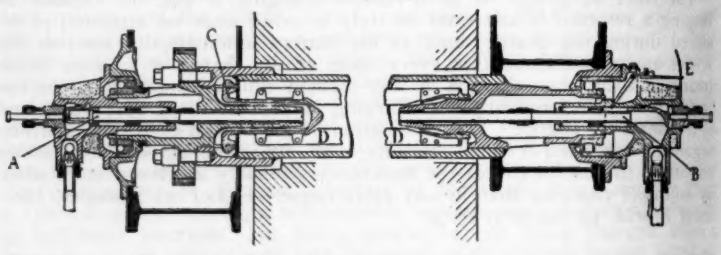
"Each of the boilers (halves of a twin boiler) is calculated to generate 16,500 pounds of steam per hour at 1,500 pounds pressure and a temperature of 700 degrees F., and is provided with eight 'rotors' which have an outside diameter of 1 foot and ¾-inch walls. The total heating surface of each boiler is thus 280 square feet. The rotors extend through the brickwork and are supported in bearings, which in turn are carried by a frame of structural steel. A bracket attached to this frame supports an

electric motor of eight horse-power, which drives, by means of spur gears, all the rotors at a speed of 330 revolutions per minute.

"The flue gases, after passing the rotors, are first utilized to heat the superheaters, then the high-pressure water economizers and, finally, the low-pressure economizers, in order, thereafter, to escape into the chimney at a temperature of 350 to 400 degrees F., corresponding to a boiler efficiency of eighty per cent."

The feed water is admitted through a small central tube which turns with the rotor. There is a similar tube at the other end for the steam outlet, both tubes being provided with special stuffing boxes packed to remain tight against the 1,500-pound pressure while the rotor is in motion. After describing the various regulating and safety devices, the article concludes:

"All the devices and constructions described have passed the first experimental stage and have stood the test of actual service. The attached photograph shows the first experimental installation located at the Carnegie Sugar Refining Works, at Gotenburg, Sweden. Here the steam is generated at a pressure of 900 pounds per square inch. The boiler has been in continuous daily service under rather unfavorable conditions ever since December, 1921, and has given entirely satisfactory results."



THRICE AS POWERFUL AS OUR BIGGEST BOILERS

The new Swedish rotating boiler which will furnish steam at 1,500 pounds pressure. Each boiler has eight twirling "rotors," one of which is here shown in cross-sections displaying the feed connection (left) and steam connection. They rotate at a speed of 330 revolutions per minute.

Commenting editorially on this boiler and on high pressures in general, *Power* says:

"Much credit must be given to the inventor for his courage in breaking away from all tradition, even to the extent of rotating the tubes. No one should blame American engineers, however, if they are at first a little skeptical as to the safety and reliability of the arrangement used. They will naturally wonder what would happen if the driving motor should stop, thus allowing the centrifugal shell of water to fall to the bottom of the 'rotor.' Another question will be as to the extent of the disaster if a rotor should explode.

"All these things must be considered, but they should not lead to hasty conclusions with regard to this particular boiler or high pressures in general. The wise ones will keep in mind the builders of wooden ships, who laughed at the idea that ships would ever be made of iron. They may hang on to their own money while the other fellows do the experimenting, but they will not fail to keep informed on every new development in this field."—*Literary Digest*, 17 March, 1923.

HOW DUTCH YARD LAUNCHES SHIP IN NARROW SPACE.—The launching of vessels in restricted spaces is a difficulty which has to be faced at the Royal "De Schelde" Dockyard, Flushing, in that the ships have to be launched down the middle of a comparatively narrow canal, writes Mr. W. Hamilton Martin. The method of launching adopted there to accomplish this in a satisfactory manner is of interest. The two large slips are situated at the head of a canal which has a constant water-level normally; the level, however, can be raised to suit launching purposes. As this canal is only 170 feet wide, special care has to be taken that the vessel to be launched is brought up without running into the canal banks. In larger vessels there is not sixty feet between each side of the ship and either bank.

The trouble is not so much, therefore, in the actual run available as from the width of the canal. There is a clear run of about 500 yards from the ways, so by dropping the anchors attached to the cradle and sliding ways directly after the vessel clears the ends of the standing ways, there is room for the vessel to carry on and clear the cradle, etc. No drags are used for bringing up the vessel, but she is made to run into a very large floating raft—about sixty feet by sixty feet and ten feet thick, built up of fagots all carefully bound together—of which one-third floats above water.

The size of the raft is regulated according to the size and launching weight of a particular vessel, from experience previously gained, and it is held by guy ropes nicely square to the line of travel of the ship, which rams it with her stern. This comparatively soft mass of wood then piles up and closes around the stern and propeller or propellers of the ship which firmly hold it, and the whole mass, with its large area offered to the water and its great weight to be set suddenly in motion, acts as a very powerful retarding agent, and invariably brings the ship up in a distance of from 100 to 150 feet.

In the event of the ship leaving its intended course through some unforeseen circumstance, the cushion of faggots closely packed around its stern acts as a thorough and kindly fender to the ship and the bank if they come into contact. At the worst, the blow will be a glancing one, insuring little damage to either. The vessels are generally launched with rudder and propellers all fitted, while some strengthening beams are added to keep the rudder amidships, and to take the first impact with the comparatively soft raft and to protect the propellers. For nearly fifty years this method has proven satisfactory. Only once did a vessel swing clear of the raft after striking it, but she came to rest in the wood-clad earthen banks with more noise than actual damage to herself. This method would be impracticable in a busy waterway apart even from the fact that the tide would prevent the raft from keeping a definite position.—*Nautical Gazette*, 17 February, 1923.

AERONAUTICS

ARE HUGE AIRCRAFT CARRIERS WORTH WHILE?—The description published in this journal dated December last, of the changes made in the design of the battle cruisers *Lexington* and *Saratoga* to equip them for their new rôle as aircraft carriers, raises anew a question which has been discussed in British naval circles for some time past, namely, whether it is sound policy to employ as floating airdromes vessels of very large dimensions. As the arguments against this policy certainly appear to deserve considerations, it may be worth while to summarize them here.

(1) Huge aircraft carriers are to be deprecated on economical grounds. As each unit costs a great deal of money, the total number of such vessels must in any case be limited, irrespective of the restriction imposed by

the Washington agreement. Would it not be better to build three medium or four comparatively small carriers in place of two very large ones? For the cost of building one *Lexington* it would, no doubt, be possible to build two ships of the British *Hermes* type, 10,950 tons. Moreover, to concentrate practically one-half of the aviation material of the fleet into one ship is to put "all the eggs in one basket," and a somewhat fragile basket at that. A ship cannot be in more than one place at a time, and it is not difficult to visualize occasions when the possession of one or two additional aricraft carriers would make all the difference between success and failure in executing some problem of strategy or tactics. Another fact to be remembered is that the enemy naturally make a determined attempt to destroy or disable these huge floating airdromes, knowing that the loss of one would be a terrible blow to the other side by depriving it of half its air force and thus rendering it partially blind. For this reason such ships would become the target for concentrated attack by submarines, aircraft and other weapons.

(2) The aircraft carrier is exceedingly vulnerable, in that superficial injury which would not impair the fighting power of an ordinary battleship or cruiser might put the carrier out of action. If the flying-off deck were holed by bombs or bursting shell, even of small caliber, machines could no longer alight on it, and the power to do this is the chief justification for building very large carriers. The spacious deck of the *Lexington*, for instance, would present an inviting mark for bombing airplanes and long-range gunfire, and one direct hit might tear a huge gap in the light plating, making it a death trap to descending machines. The recent experiments with the British battleship *Agamemnon*, which was bombed from the air when steaming at 15 knots under radio control, showed that a good percentage of hits can be reckoned with even when the attacking planes keep at a great height. The *Lexington* would, of course, offer a target nearly four times as large, and in time of war attacking planes will take big risks in order to get their bombs fairly on the mark.

(3) The only advantage the *Lexington* has over the *Hermes*, a ship of two-thirds less displacement, is her ability to act as a landing ground for homing airplanes and her greater capacity for housing planes; but the first advantage might be nullified by a lucky hit in the opening engagement of the war, while if the ship were sunk the loss of aviation material would be proportionately greater. In any case, many naval officers regard it as unnecessary to make special provision for the landing on deck of airplanes after fight. This is no easy performance under the most favorable conditions prevailing in peace; it would be infinitely harder to accomplish under the conditions of battle, with the carrier probably steaming at full speed, making frequent changes of course, perhaps under a heavy fire, and half obscured by shell splashes and powder fumes. The probability is, therefore, that in time of war an airplane which had once left the carrier could not return to it, and must either be abandoned or left in the water until an opportunity occurred for salving it. If this view be accepted, the principal argument in favor of huge floating airdromes ceases to have any point, for airplanes can be launched with ease and safety from ships of relatively small dimensions, as has been proved in actual practice.

The British Navy has two big aircraft carriers: the *Eagle*, an ex-battleship of 22,790 tons; and the *Furious*, ex-battle cruiser, of 19,100 tons. But its most successful carrier is the *Argus*, of 14,450 tons, and it is significant that in the *Hermes*, the first ship *specially designed* for this purpose, and not converted as the others were, the Admiralty did not go above 10,950 tons. The impression in Europe is that the former Ameri-

can and Japanese battle cruisers are being transformed into aircraft carriers less on account of their inherent fitness for this work than because it furnished means of saving these valuable ships from the junkpile and adding floating airdromes to the respective navies more quickly than would have been possible if entirely new ships had to be designed. Probably, also, it was easier to obtain appropriations for converting the half-finished ships in question than for new construction.—Hector C. Bywater in *Scientific American*, March, 1923.

ANTI-LIGHTNING PROTECTION FOR BALLOONS.—During recent years as many as four kite observation balloons used by the United States Navy during fleet maneuvers have been destroyed by lightning. The loss entailed represents approximately $50,000. Numerous other lighter-than-air craft have been destroyed by certain agents, the identity of which has never been definitely proven.

A study of the effect of lightning on kite balloons has been carefully made by the Navy Department, and it has been found that certain conditions exist on board lighter-than-air craft when suspended at different heights and subjected to the effect of passing clouds or changes in atmospheric conditions. This effect induces electrical charges on the balloon body which in certain cases give rise to electrical sparks which ignite the fabric and in turn explode the gas used in the balloon. To overcome the effects of lightning on kite balloons, the Navy Department has developed a special protective device which keeps the electrical discharges off the surfaces of the balloon and passes them to ground, thus producing a sheltering screen over the body of the balloon. Such a system can also be applied to airships and it is believed that the use of this device will prevent destruction of these vessels and make for safer navigation of lighter-than-air craft.—*Aviation*, 5 March, 1923.

THE AIR PARLIAMENT.—A number of excellent papers were read at the Air Conference last week, and the whole proceedings were conducted in a spirit of enthusiasm which augurs well for the future of national aviation. In Sir Samuel Hoare we have an Air Minister who may be counted on to do everything possible for the promotion of air interests. He, however, like his predecessors, is handicapped by the financial restrictions imposed by the Treasury, and with the best will in the world it is impossible to build up an adequate air force on the meagre funds now available. All Governments are very much alike when it comes to spending money on defense; they rarely move until pushed by public opinion. The present Government has not, thus far, displayed any more interest in the air question than the late one did, and the fact that the Minister responsible has no seat in the Cabinet necessarily limits his influence, however enthusiastic he may be personally.

What is needed is a widespread agitation for proper air defense. The country must be told that, at the present time, it has no real protection against this form of attack, the deadly nature of which increases year by year with the continuous development of aircraft and the weapons they use. The general public does not yet realize that the Navy and the Army, essential as both are to the defense of homeland and Empire, can do practically nothing to protect our cities, ports, and factories from devastating bombardment. Though the Navy were in undisputed command of the sea and the Army mobilized at full strength, their combined efforts could not deflect a single bomb from the sky. Our age-old first line of defense has broken down, and we have nothing to put in its place.

The scheme for a self-supporting airship service, which would be at the disposal of the Admiralty in time of war, was set forth in detail in

the paper which Commander Dennis Burney read at the Conference. It appears from this that the proposed airships will not be of excessive dimensions. The type in view would be about 760 feet in length and 110 feet in diameter. Allowing a good margin for ruggedness of construction and for the contrary winds that might be met with in a long passage, each ship would be capable of transporting 207 passengers and ten tons of mail or other freight a distance of 3,000 miles at a speed of eighty miles per hour. The scheme provides for the building of fuel depôts and mooring bases at Port Said, Bombay, Rangoon, Singapore, and Perth (Australia). Whether these "mooring bases" are to be sheds or only mooring masts was not explained, but, as we pointed out last week, it would be necessary to have sheds available at strategic points if the airships were to be of any real use to the Navy.

We are not greatly impressed with Commander Burney's eulogy of the airship as a carrier of fighting planes, or, indeed, with its potentiality for war service of any kind except scouting. In view of the extraordinary development of heavier-than-air craft and the practical certainty that in a few years' time there will be military aeroplanes having twice the speed and equal climbing power, and heavily armed with bombs and shell guns, it seems to us incredible that the airship can escape destruction if it is employed anywhere near the war zone. While, therefore, it may be good policy to spend £230,000 a year on securing for naval use a fleet of airships capable of acting as scouts, some will question the wisdom of spending a penny on these vessels before we are adequately provided with heavier-than-air craft.—*Naval and Military Record*, 14 February, 1923.

ORDNANCE

RANGES OF TURRET GUNS NOT TO BE INCREASED (?)—Washington, March 20.—Retraction was issued today by this Government of statements publicly and officially made that, since the disarmament conference, the British Admiralty had greatly increased the gun range of their capital ships, rendering them more formidable than American ships of corresponding design.

Secretary of State Hughes, who had made statements to this effect in his New Haven speech, upon the authority of the Navy Department, was the first to recant. An hour later Acting Secretary of the Navy Roosevelt followed suit with an explanation that navy's misinformation had come from sources believed to be "reliable."

Both declarations were prompted by a categorical denial on the part of the British Government, transmitted through the Washington embassy, that any alteration whatever had been made in the elevation of the turret guns of any British capital ship since originally placed in commission or that any additional deck protection has been provided.

Meanwhile, however, the Navy Department went to Congress a few months ago asking for $30,000,000 with which to bring the capital ships of the American Navy up to the supposed range of the dreadnaughts of the British Navy. On the strength of representation made by naval experts at that time Congress provided a total of $6,500,000 with which to begin the alterations.

The Navy Department announced informally that, in view of the official information from London, this sum would not be expended. Unless Congress authorizes its diversion to other uses it will revert to the Treasury. The department has no authority to apply it in any other direction.

That the British had taken exception to this Government's statements and policies was first known this afternoon when Secretary Hughes made public the following statement:

"In my speech at New Haven on December 29, 1922, I made the following statement with respect to alterations in the British capital ships: 'The result is that in a considerable number of British ships bulges have been fitted, elevation of turret guns increased and turret loading arrangements modified to conform to increased elevation.'

"In making this statement I relied upon specific information which had been furnished me by the Navy Department and which, of course, the Navy Department believed to be entirely trustworthy.

"The Department of State has been advised by the British Government categorically 'that no alteration has been made in the elevation of the turret guns of any British capital ships since they were first placed in commission, and further 'that no additional deck protection has been provided since February 6, 1922, the date of the signing of the Washington treaty.'

"It gives me pleasure to make this correction, as it is desired that there should be no public misapprehension."

As Secretary Hughes explains, his references to the action of the British Admiralty were based entirely upon information given to him in good faith by the Navy Department. That department in turn received its information, it is intimated, from the naval attaché of the American Embassy at London, each department in turn "passing the buck."

The Navy Department's statement was brief, but it, too, accepts the assurance of the British that this Government was misinformed. Here is what Acting Secretary Roosevelt has to say about it:

"That Navy Department in the hearings before Congress stated that the elevation of the turret guns of the British capital ships had been and were being increased. This statement was based upon information believed to be thoroughly reliable by the department.

"The British Admiralty has informed the department that this is not the case and that the elevation of the turret guns on the British capital ships is the same as when those ships were originally commissioned. This places the matter beyond further question, and the department takes pleasure in correcting its previous statement in consonance with the above."

It is stated further unofficially that in the British fleet as provided for in the disarmament treaty there is one capital ship with a range of 30,000 yards and twenty-one ships with a range of 21,000 yards. In the American Navy there are five ships with a range of 30,000 yards and thirteen ships with a range of 21,000 yards.

The general understanding seems to have been in Washington that the British proposed to increase the range of their 21,000-yard guns to 30,000 or thereabouts, which would have put our fleet largely at the mercy of the British. The Navy Department, therefore, proposed to overhaul its thirteen ships, which now have a range of 21,000 yards, to increase their range to 30,000 yards.

One of the curious circumstances about this incident is that the British waited so long to set the American Government straight upon this matter. The Hughes New Haven speech was made just before the first of the year and the Congressional hearings took place somewhat earlier.

No question has ever been raised by this Government, however, as to the right of the British to make the turret alterations under the terms of the Washington treaty. This right was freely granted, but the argument was that this Government should take advantage of the same right, a view which Congress finally adopted.—*Baltimore Sun*, 21 March, 1923.

RADIO AND NAVIGATION

FLOATING WEATHER BUREAU ON THE ATLANTIC.—A floating weather bureau, to assist in protecting the lives of the many thousands of per-

sons and millions of dollars' worth of property at sea, is regarded as almost an accomplished fact, through co-operation between the United States and France.

Edward H. Bowie, chief forecaster of the United States weather bureau, said from New Orleans, Sunday, aboard the French merchant marine training ship *Jacques Cartier*, bound for Antwerp, in company with Professors Coyecque and Adeline, experienced meteorologists and forecasters, who are members of the corps of instructors on the training ship.

During the voyage, which will occupy about twenty days, the *Jacques Cartier* is acting as the floating weather bureau of the United States and French governments and is sending broadcast by radio forecasts twice daily, for the benefit of all vessels within reach.

Major Bowie and his French colleagues, during the voyage, plan to conduct their sea-going weather bureau much the same as the forecasting headquarters at Washington and Paris. The radio operators receive from all vessels within range the state of the wind and weather, and at 10:30 in the morning and in the evening, the powerful Arlington radio station of the United States Navy sends them the data of continental United States and Canada, while the long-range Eiffel tower station at Paris gives data of European stations. These observations are charted and forecasts prepared for the ensuing twenty-four hours over the Atlantic.

Major Bowie, upon reaching Europe, will visit headquarters of the meteorological services at Paris and London, for conferences with regard to increasing by means of weather forecasts the safety of navigation on the Atlantic and other oceans. The United States navy has indorsed the project and is assisting in every way possible.—*Associated Press*, 13 February, 1923.

NEW LIGHTHOUSE APPARATUS FOR PORT SAID.—We were invited earlier in the week to inspect at the works of Chance Brothers and Company, Limited, at Smethwick, a new apparatus which that firm has constructed for the lighthouse at Port Said, and which consists of a lens, with its mercury float pedestal, revolving clockwork mechanism and burners. The lantern, of 12ft. 9in. internal diameter, inside which the apparatus, etc., will be placed, has already been dispatched to Port Said.

The illuminant is an incandescent oil burner of the latest type, giving a very high intrinsic brilliancy, and it will replace the existing electric lamp, with, we are informed, a resulting large economy in cost of upkeep and attendance. The beam from the new lens will be about 1,250,000 British candles, which will give a luminous range of between ninety and 100 miles in clear weather in the Mediterranean. The height from the sea-level to the focal plane of the light when erected on the tower will be 124ft., and this will give an actual geographical range to a vessel at sea twenty-four miles.—*The Engineer*, 23 February, 1923.

NEW DAY MARK FOR ANCHORED POWER VESSELS.—A new Federal regulation, governing steamers and other steam craft at anchor, has been promulgated by the United States Steamboat Inspection Service and has been approved by the Assistant Secretary of Commerce. According to this new rule, vessels propelled by machinery which are moored or anchored shall display by day, forward where it can be best seen, one black ball or shape not less than two feet in diameter.

This rule was added to the regulations of the Steamboat Inspection Service in compliance with a recommendation made by the Maritime Association of the Boston Chamber of Commerce last May, which urged the adoption of a day mark on steam vessels lying at anchor in order to further safeguard the movements of other vessels. It was brought out in

the letter recommending this adoption that it is frequently very difficult to see whether vessels are at anchor or moving slowly until other vessels approach too close to keep clear.—*Nautical Gazette*, 10 March, 1923.

SEA-GOING LABORATORY URGED TO AID SAFETY.—Washington, March 12.—An experimental ship specially fitted for research in marine physics is proposed by Dr. L. V. King, of the National Research Council's Committee on Acoustics, as an important step toward the reduction of the yearly toll of lives and property resulting from preventable accidents at sea. The improvement in the design of aerial and submarine sound generators offers a large field for scientific effort, he said, and the first cost of equipment to make such study would be more than repaid by the lives and properly saved.

The installation at the Fire Island Light, near New York Harbor, of synchronous signaling by radio-telegraph and by submarine sound he cited as an example of the kind of things which could be done. This apparatus sends out a series of dots automatically through the ether and through the water, the intervals between them correspondng to the time taken for sound to travel say 1,000 feet.

The ship operator has his telephone connected to the aerial and to a hydrophone. It he counts the number of dots reaching the apparatus before the first of those traveling by water reaches his hydrophone, he evidently obtains at once the distance from the source, reckoning 1,000 feet per dot.

If his ship is also equipped with a wireless direction finder, he knows his exact location and can thus steer a safe course in fog.—*Baltimore Evening Sun*, 12 March, 1923.

MISCELLANEOUS

U. S. NAVY CAN HELP TO KEEP ASIA QUIET.—London, March 1.—In a previous article I referred to certain criticisms which have been raised in America against the soundness of the policy of averting war in the Pacific by maintaining a strong navy. It has been argued by one correspondent that the "*si vis pacem, para bellum*" theory no longer holds good, having been thoroughly discredited by recent history, and that consequently it would be futile and irrational to pay enormous sums for the upkeep of a big fleet in peace time.

But the premise that preparedness affords no guarantee against the risk of war is open to question. It is true that when armaments are allied with an aggressive foreign policy they constitute a real danger to peace. For example, while Germany was building up a powerful fleet and maintaining the greatest army in the world, her rulers were making truculent speeches and revealing by word and deed their intention of imposing their will on Europe by brute force. One might also find in the present attitude of France a further instance of the consciousness of armed strength inducing a provocative policy toward neighboring states.

In this discussion, however, we are dealing not with the Old World but with the new, and, therefore, with a fundamentally different political *Weltanschauung*. Whether one agrees or disagrees with American aims and ideals, no unprejudiced spectator can deny that they spring from a deep-rooted love of peace for its own sake. The United States has sometimes been charged with pacifism, but never, so far as I know, has she been accused of harboring warlike designs in any quarter of the globe.

Nor is there any reason to anticipate a departure from this traditional American policy of regarding war as an unmitigated evil, to be avoided by any means short of a sacrifice of national honor. Even when Mr. Josephus Daniels was agitating for "the biggest navy in the world" no one

in England construed this movement as a threat. Rather was it viewed as an extreme and possibly ill-timed expression of America's resolve to discourage would-be disturbers of the peace, whether in Europe or in Asia.

If, therefore, the United States were to begin developing her navy up to the limit permissible under the Washington treaty—and at the present time it is far below that limit—she could not be suspected of cherishing military schemes. The idea that any American Government likely to be elected within the discernible future would knowingly pursue a policy antagonistic to peace is too grotesque to be worth a moment's notice.

We shall therefore be safe in concluding that whether the national armaments be strong or weak, America's policy abroad will continue to be guided by the same desire to preserve peace. It is well to stress this point if, as I am assured, there are people in America so ignorant of their country's history and so blind to the obvious trend of national policy as to believe that the possession of a really formidable navy would tempt their statesmen to embark on imperialistic schemes liable to provoke war.

To return now to the thesis that armaments do not insure against war: this seems to be based on the popular belief that the World War came at a period when all the major States of Europe were armed to the teeth.

But a closer investigation of the circumstances would show that neither France nor Russia was properly prepared in 1914. They were, in fact, caught napping by a vigilant and unscrupulous foe who, having made up his mind that war was essential to the furtherance of his policy, launched the bolt at his selected moment. The French Army was far below its paper establishment. The disclosures made by Senator Humbert early in 1914 showed the nominal strength of the army on mobilization to be forty per cent below the official calculation, that there was a fifty per cent deficiency in equipment and that the frontier forts on which so much reliance was placed as a bulwark against invasion were hopelessly obsolete.

All this was perfectly well known to the German general staff. They knew, also, that Russia was in no condition to wage effective war. The strategic railways which alone would have enabled Russia to concentrate her manpower in the decisive zones had not even been commenced. Germany, indeed, held most of the cards and so far as military strategy was concerned her action in declaring war was by no means so reckless a gamble as it seemed at the time. Great Britain was prepared for war by sea, and it is still a debatable question whether Germany would have broken the peace had she known positively that we should side against her.

That the reputed impotence of the American Navy and Army was one of the chief reasons that encouraged the German war leaders to launch their ruthless *U*-boat campaign has been freely admitted by them. Had the American Fleet in 1917 been half as strong again as it actually was, Germany would have hesitated to defy Washington in the matter of submarine warfare, and the United States might have been spared the necessity of taking up arms to vindicate its rights.

If any consider this statement farfetched I would refer them to the proceedings at the Reichstag committee of inquiry into the war, held in 1919, when a large number of German officers and experts testified that the risk of American intervention had been accepted because the Berlin war chiefs believed that country to be incapable of putting up a respectable fight.

Ludendorff's own words were: "America can be disregarded as a negligible factor. She has no army, and if she tries to send her handful of troops to Europe she will have no ships to defend them against our *U*-boats. America simply does not count."

Other high officers were of the same opinion, and only the Chancellor, Bethmann-Hollweg, remained dubious as to the wisdom of flouting the

United States. In the light of these facts it is surely permissible to contend that unpreparedness was largely responsible for bringing America into the war.

When a British Cabinet Minister grumbled at the cost of the navy, Lord Fisher laconically remarked that "battleships were cheaper than battles." In spite of the tremendous cost of modern naval material, that epigram still holds true. The direct and indirect expenditure entailed by a month of war would exceed the cost of building an entire fleet in peace time.

Last year the General Board of the United States Navy drew up a program of fast cruisers and long-range submarines, which would be indispensable to the fleet if it had to operate under war conditions. This program has been shelved in deference to economy, so that the navy is deprived for another year of units essential to its fighting efficiency. America's military weakness has become a favorite topic of discussion by Japanese publicists, not a few of whom use it as an argument in favor of taking stronger measures with China.

Those who follow the development of Oriental ideals are aware of the growing conviction that America will under no circumstances wage a war in defense of her Transpacific interests. It must be remembered that even the ruling classes of Japan have but a superficial knowledge of foreign countries and are quite unversed in western mentality. To them it seems incredible that America would have relinquished so much of her actual and potential power in the Pacific unless she had previously made up her mind to hold aloof from all commitments in that quarter.

This impression is not confined to Japan. It has spread to China, where the trend of events since the Washington Conference has given rise to pessimism with regard to the future of the country now that American protection, which although never definitely promised, was always counted upon, has apparently been withdrawn.

For the last two decades it has been an article of faith among the Chinese of all sections that the great republic of the west, at her own time, would step in and save them from Japanese aggression. Native students who returned from the United States did much to foster this belief by their glowing accounts of America's benevolent interest in China and her firm resolve to stand no nonsense from Japan. The process of disillusionment has been assisted by the Japanese press, which is never tired of telling China that since her western friends have left her in the lurch she must henceforth fall in with the wishes of her natural protector: viz., Japan, and leave that power to shape her political destinies.

It is useless to blink the fact that this apparent loss of American prestige in the Far East has strengthened the hands of the Japanese militarists, who point to it as a complete justification of their policy. They argue that, although the "eight-eight" naval program was never completed, it served its purpose by forcing America to abandon her plan of becoming the predominant partner in East Asia and securing the lion's share of its wealth and trade. Finding herself unable to compete with Japan's growing naval power except at a cost which she considered prohibitive, she summoned a conference to regulate sea armaments by treaty, the result of which has been to leave Japan in absolute control of the Western Pacific.

Fallacious though it be, this argument is not easy to refute, for as the Japanese are intensely materialistic in matters of foreign policy it is impossible for them to conceive of any nation sacrificing weighty interests for an ideal.

Out of all the calculable developments in the Far East there are only two which might bring war in their train. The first is an attempt by any

power to undermine Japan's political and economic ascendancy in that sphere. The second is an increase of domestic unrest in Japan to an extent that threatened to subvert the existing régime. In the latter event it would be in accordance with Japanese precedent to create a diversion abroad and so to smother incipient revolution under a tidal wave of patriotic sentiment. A convenient pretext for this could be found in America's treatment of Asiatic immigrants. In either of the cases mentioned the risk of war would be intensified if Japan's rulers felt confident of achieving a victory. On the other hand, they would be less inclined to dare the hazard of conflict with an opponent who was powerfully armed. That is one reason why peace in the East is bound up so closely with preparedness in the West.—Hector C. Bywater in *Baltimore Sun,* 20 March, 1923.

AIR SUPREMACY.—Washington, February 18.—Co-incident with the announcement of Italy's ratification of the Washington Naval Treaty, comes the publication of the proposal of the Italian government to launch the formation of a fleet of 790 airplanes, the future air force which would enable her to dominate that section of the Mediterranean and control the coming air route from Europe to the Near East.

Official circles are keenly interested over this report which is looked upon as the first open move among European countries to challenge France's supremacy in the air which for months past has been the subject of considerable agitation in the foreign press and of parliamentary discussion particularly in England and Italy.

That France now is "Queen of the Air" is an undisputed statement among American air experts who have been following the feverish activity which has marked her development of aviation since the war and particularly during the past year.

With an active Air Service consisting of 128 squadrons, a standing flying personnel of more than 3,000 aviators and a force of ground workers of more than 31,000 men, approximately twelve to fifteen hundred planes in the organization ready for instant call, France in twenty-four hours could muster an effective air force estimated at from eight to ten times the strength that England could have available in home territory.

In addition to this force which is kept in such a state of preparedness that it could be completely mobilized within thirty-six hours ready to strike, 800 pilots have been in training every year for three years past and has called back to the colors from two to three hundred pilots annually for service, which is building her up a tremendous reserve supply of fliers in case of emergency.

During 1922 the output of new planes averaged 300 machines a month, a part of which was for export but in case of war all of the 3,600 planes turned out during the year, whether for civilian or military purposes would be available. While much of the information regarding number and types the French have available for war uses is jealously guarded, as well as data as to the different types and weight of bombs they carry, it is known here and abroad that in modern types of swift combat and observation planes as well as in the latest big bombers, France is far in the lead.

That this undisputed supremacy of the air was a definite objective to be obtained by the French before undertaking to move in the Ruhr is the opinion of many military strategists here. Some of them believe that it accomplished the desired purpose and had a direct influence on England's attitude of "standing by" without strenuous protest when the move was finally made.

With her matchless air organization, these strategists point out, France not only holds the key to British naval operations in the Mediterranean but could within a few hours strike southern England and London itself with a force to which the channel and the straits are no barrier.

Open cognizance of this has been taken by the British not only in parliamentary debate but in papers of recognized standing. In a recent editorial the *Manchester Guardian* points out the "hopeless inferiority" of the British air forces which "could not be tolerated" except in the case of a "France between whom and ourself there was a mutual trust."

According to official figures the Royal Air Force in Europe, including those for the time being in the Constantinople area is approximately fifteen squadrons as against more than a hundred which the French have at home. The British squadrons, however, consist of twelve planes each while the French average from nine to ten. The total number of British active squadrons is thirty-two. The personnel force of the British in Europe consists of approximately 1,200 trained pilots, seventy-five observers and about 20,000 men needed for ground duty.

Figures on the effective air strength in the United States make an interesting comparison with those of the French force. According to the last report of the Army Air Service here there were 772 pilots and seventy-five observers on the active list and 797 observation, pursuit and bombing planes on hand ready for service with 370 of the same type contracted for and in process of construction. These figures are of course exclusive of Naval Aviation, the primary purpose of which of course is service with the fleet and defensive off shore operations, and of Marine Corps aviation.

Full recognition of the vast development of aviation abroad has been given by both the army and navy here and a comprehensive plan for systematic development of both the Air Service and Naval Aviation has been worked out. It calls for an eventual Air Service with 300 planes on each coast and 1,000 planes at points in the interior, and a naval development that will provide 300 planes to be placed on every possible ship in active service and approximately 300 planes for the two huge airplane carriers now under construction. Twenty-five hundred officers and 40,000 men is the ultimate goal the Air Service seeks and at the next session of Congress it is expected that an attempt will be made to inaugurate such a program, the plan being to extend it over a period of several years.

SALUTE AND SPEAK.—For years it has been the custom of many officers, when returning the salutes of noncommissioned staff officers and sergeants of their acquaintance, to accompany the return of salutes from these men with a word of acknowledgment or greeting when within speaking distance. It is desired to suggest that it would be worth while to extend the application of this recognized custom to the acknowledgment of salutes from all soldiers. In all our text books and Regulations which refer to the salute, emphasis is laid on the fact that this is an act of military courtesy. In the instruction of recruits never failing emphasis is laid on the time-honored significance of the salute, as a mark of recognition not only of the respect and subordination of a junior for his senior, but as well as its symbolism of the bond of comradeship which exists between all the members of the military service. When two officers meet and exchange salutes, this symbolism is fully emphasized by the well-nigh universal practice of exchanging a word of greeting at the time the salutes are rendered. Can there be any good reason for not extending this logical practice to the exchange of salutes between officers and soldiers?

It would seem that there could be but two objections to the adoption of this practice. The first might be that if officers were to greet all soldiers with a "good morning" or "good afternoon," those whom they knew personally and those whom they did not know alike, there might be opened the opportunity for unwarranted familiarity on the part of untrained and indiscriminating soldiers, and the breakdown of what is sometimes considered to be a necessary reserve in the relations between

officers and soldiers. As a bit of positive testimony to the fact that no such calamitous peril lies in wait, there may be pardoned the personal statement of the writer that for years he has followed this custom, and that while his verbal greeting has sometimes occasioned evident surprise on the part of soldiers who did not know him, yet not once in all these years has there been indicated the slightest tendency to take unwarranted advantage of this courteous practice.

The second possible objection is that if an officer felt called upon to speak to every soldier whom he passed within hearing, that the demand on his attention and vocal organs would constitute an insufferable nuisance. In answer to this objection it seems only necessary to hark back to the conception that the salute itself is considered an act of courtesy, an act which is as incumbent upon the officer for its performance as upon the soldier and that if it is not considered intolerable to require the salute as an act of courtesy, it is not intolerable to make the act one of courtesy in fact as well as in name.

From time to time one hears complaint as to the difficulty in securing compliance with the regulations concerning the salute. It is believed that the general adoption of the custom hereby suggested, would go a long way toward removing this difficulty. Again injecting an item of personal experience, the writer may state that the failure to tender him the required salute by soldiers is an extremely rare occurrence and a practically unknown occurrence in so far as soldiers who know him are concerned. Furthermore, since the change in Army Regulations has gone into effect which does not require the exchange of salutes when not on a military reservation, the writer has not in a single instance failed to receive a salute under these conditions from soldiers who know him by sight.

The value of the salute in the military service is generally recognized, and consequently the insistence on proper saluting was one of the fundamental items in the training of our huge war-time Army. There is ample evidence to show that thousands of men now in civil life who were in the Army during the War entertain a feeling of bitterness and resentment toward the salute that transcends any other unpleasant recollection of their military service. It is not unreasonable to suppose that if this custom had been generally modified to include a verbal acknowledgment on the part of officers, that the memory of the salute would have left no sting in the minds of these war veterans. Not only would this spoken word made the salute appear to them in fact an act of military courtesy, but in addition it would doubtless have had the effect of modifying the attitude of the officers themselves so that their acknowledgment of salutes would have been not merely perfunctory and palpably impersonal, but unconsciously and genuinely courteous. Real and spontaneous courtesy can never do any harm, either inside the Army or outside.—*The Coast Artillery Journal,* March, 1923.

CURRENT NAVAL AND PROFESSIONAL PAPERS

"U. S. S. *Maryland,* Description and Official Trials,"—(a very complete and interesting description of the ship and electric drive installation, with illustrations and wiring diagrams), Lieutenant Commander F. T. Van Auken, U. S. N., in the *Journal of the American Society of Naval Engineers* for February, 1923.

"The Wireless Equipment of Aircraft,"—(Direction finding, communication, etc., on the Croyden-Paris airline),—*The Engineer,* 23 February, 1923.

"Shooting Seaplanes from the Deck of a Speeding Ship,"—(an illustrated article on the various types of catapults in use in our Navy), by S. G. Roberts in the *Compressed Air Magazine*, for March, 1923.

"Scrapping Mahan,"—("the world therefore has scrapped more than battleships; it has discarded Mahan's entire philosophy for an experiment in faith"), by W. O. Stevens in *The Yale Review* for April, 1923.

Pertinent Articles in: *The Journal of the Royal Service Institution* for February, 1923:

1. "The Blockade of Germany by the Tenth Cruiser Squadron in the Atlantic" (Lecture), by Admiral Sir R. G. O. Tupper.
2. "Decoy as a Weapon in Naval Warfare," by Lieutenant G. C. Steele, R. N.

NOTES ON INTERNATIONAL AFFAIRS

FROM FEBRUARY 23 TO MARCH 23

Prepared by ALLAN WESTCOTT, Professor, U. S. Naval Academy

FRANCE IN THE RUHR

Food riots, sabotage, attacks upon French officials, and French measures of prevention and reprisal continued in the Ruhr during March. In spite of constant rumors of direct negotiations between France and Germany or mediation by other powers, no steps of this nature were made public. Events up to March 23 may be summarized:

(1) On February 25 French troops occupied the intervals separating the previously occupied zones around the bridgeheads of Mayence, Coblenz, and Cologne. This extension of the occupied zones was necessary to complete the customs line and export licensing system adopted by the French authorities.

(2) On February 28 the ban was lifted on coal exports from the Ruhr to Germany, subject to payment to the French of the forty per cent tax which Germany was supposed to have collected prior to the occupation.

(3) In the Reichstag on March 6 Premier Cuno denounced French action in the Ruhr and declared that no approaches for settlement could be made at that time, although Germany, "when the path was open would be ready for frank discussion as an equal government." This attitude was approved by the Reichstag and the press, but it was reported that Ruhr industrial magnates were pressing the government to open negotiations.

(4) On March 10 two French officials were murdered in the town of Buer, and during rioting after the arrest of German suspects eight Germans were killed and thirteen wounded.

(5) At the Brussels Conference between the French and Belgian premiers on March 12 it was decided that there should be no discussion or negotiations with Germany or terms for withdrawal from the Ruhr, until full execution by Germany of reparations obligations. Accord was reached regarding measures to be taken in the Ruhr, although during the discussion the Belgian delegates were more inclined toward efforts to come to terms with Germany, providing not only for reparations but also for security, in view of Anglo-American refusal to ratify the guarantee treaties proposed at Versailles.

(6) On March 16 the German ambassador in Washington handed to Secretary Hughes a memorandum stating the German position regarding reparations and the Ruhr situation. This memorandum was placed on

the confidential file, and, although consent was given by Berlin, its contents were not communicated to the French or other governments.

FRANCE

FRENCH VIEW OF NAVAL TREATIES.—Paris, March 21 (Associated Press)—Deputy Charles Guernier, the official reporter on the Washington naval treaty, today made his long-deferred report to the Foreign Affairs Committee of the Chamber of Deputies. While his conclusions were favorable to ratification by France, his exceptions and reservations were such that a majority of the committee thought it necessary to give Aristide Briand and René Viviani, the former of whom headed the French delegation to the Washington Conference, a chance to be heard before the committee made its recommendations.

M. Guernier's exceptions and reservations were twofold. The first was that France would be bound for too long a period of time by the agreement, and the second that the allotment of tonnage was out of proportion to the country's needs regarding the safety of the seaboards of the mother country and of the colonies. M. Guernier argued that M. Briand and Viviani had failed to safeguard the best interests of France and Japan had treated her as "a poor country cousin."

RUSSIA

NO AMERICAN RECOGNITION.—Washington, March 21.—Not until the Soviet Government of Russia sees fit to abandon policies that involve repudiation of international obligations, confiscation of private property and visitation upon other peoples of the world of "the disasters that have overwhelmed the Russian people" will the Government of the United States consider extending recognition to that Government, according to the policy outlined in a notable speech which Secretary Hughes made today to a delegation of women representing the Women's International League for Peace and Freedom.

The fundamental test, so far as recognition was involved, Secretary Hughes declared, was the evidence of a Government's ability and disposition to discharge international obligations, and in this connection, he pointed out, the United States had loaned the Kerensky régime about $187,000,000, yet in January, 1921, the present Government of Russia, the Secretary said, "unconditionally and without any exceptions" annulled the foreign debt of Russia. He added:

"Not only would it be a mistaken policy to give encouragement to repudiation and confiscation, but it is also important to remember that there should be no encouragement to those efforts of the Soviet authorities to visit upon other peoples the disasters that have overwhelmed the Russian people."

The Secretary told the delegation he wished he could believe that such efforts had been abandoned. But not later than November, he told them, Zinovlev had solemnly declared that "the eternal in the Russian revolution is the fact that it is the beginning of the world revolution," while in October Trotzky, addressing the Russian Communist youths, assured them that the revolution was coming in Europe and in America, and that when it did come it would be "long protracted, cruel and sanguinary."

TURKEY AND NEAR EAST

ALLIES DISCUSS TURKISH REPLY.—After adverse action regarding the Lausanne Treaty by the Angora parliament, Turkey prepared a document

proposing numerous eliminations, additions, and changes in the treaty. The proposed changes related chiefly to the treatment of foreigners in Turkey, and the distribution of the Turkish debt among provinces detached after the war. No changes were made in the articles relating to the Straits, and it was felt that the counter-proposals in general offered no dangerous obstacles to a final settlement.

During the week of March 18-24 French, British, and Italian representatives met in London to define the attitude of the Allies regarding the counter-proposals and settle time and place for further negotiations.

FAR EAST

CHINA PROPOSES ABROGATION OF "TWENTY-ONE DEMANDS" TREATY.—On March 10 the Chinese Government sent a note to Japan suggesting that a date be set for discussion of the return to China of Dalny and Port Arthur (the twenty-five-year lease of which expires in the near future) and the abrogation of the 1915 treaties between China and Japan embodying some of the famous "twenty-one demands." This move on the part of China was regarded as little more than a maneuver in the approaching Chinese presidential elections. Japan replied rejecting the Chinese proposal.

It was pointed out that "Group I" of the "twenty-one demands" was eliminated by the return of Shantung. Groups II, III, and IV provide for an extension of the Japanese lease in Port Arthur and economic privileges in Southern Manchuria and Eastern Inner Mongolia.

UNITED STATES AND LATIN AMERICA

SETTLEMENT OF RHINE ARMY CLAIMS.—During March negotiations were conducted in Paris between Eliot Wadsworth, representing the U. S. Treasury Department, and Allied officials to settle the method of payment for the American Army of Occupation in Germany. As finally proposed and accepted in principle by the Washington Government, the settlement reached provided that the American claims be paid in twelve annual installments out of future cash deliveries by Germany.

The American claims amount to about $255,000,000, or 1,000,000,000 gold marks, which would call for twelve payments of about 80,000,000 gold marks. The United States rejected the proposal that the value of German ships seized by the United States during the war, amounting to perhaps $20,000,000, should be deducted from the total claims.

PROPOSAL TO JOIN WORLD COURT.—On February 24 President Harding sent the following message to the Senate, urging consent to adhesion by the United States to the protocol establishing the Permanent Court of International Justice:

To the Senate:

There has been established at The Hague a Permanent Court of International Justice for the trial and decision of international causes by

judicial methods, now effective through the ratification by the signatory powers of a special protocol. It is organized and functioning. The United States is a competent suitor in the court through provision of the statute creating it, but that relation is not sufficient for a nation long committed to the peaceful settlement of international controversies. Indeed, our nation had a conspicuous place in the advocacy of such an agency of peace and international adjustment, and our deliberate public opinion of today is overwhelmingly in favor of our full participation, and the attending obligations of maintenance and the furtherance of its prestige. It is for this reason that I am now asking for the consent of the Senate to our adhesion to the protocol.

With this request I am sending to the Senate a copy of the letter addressed to me by the Secretary of State in which he presents in detail the history of the establishment of the court, takes note of the objection to our adherence because of the court's organization under the auspices of the League of Nations, and its relation thereto, and indicates how, with certain reservations, we may fully adhere and participate and remain wholly free from any legal relation to the League or assumption of obligation under the covenant of the League.

I forbear repeating the presentation made by the Secretary of State, but there is one phase of the matter not covered in his letter with which I choose frankly to acquaint the Senate. For a long period, indeed ever since the international conference on the limitation of armament, the consideration of plans under which we might adhere to the protocol has been under way. We were unwilling to adhere unless we could participate in the selection of the judges; we could not hope to participate with an American accord if adherence involved any legal relation to the League. These conditions, there is good reason to believe, will be acceptable to the signatory powers, though nothing definitely can be done until the United States tenders adhesion with these reservations. Manifestly the Executive cannot make this tender until the Senate has spoken its approval. Therefore I must earnestly urge your favorable advice and consent. I would rejoice if some action could be taken even in the short period which remains of the present session.

It is not a new problem in international relationship; it is wholly a question of accepting an established institution of high character, and making effective all the fine things which have been said by us in favor of such an agency of advanced civilization. It would be well worth the while of the Senate to make such special effort as is becoming to record its approval. Such action would add to our own consciousness of participation in the fortunate advancement of international relationship and remind the world anew that we are ready for our proper part in furthering peace and adding to stability in world affairs.

The President's message was referred to the Senate Committee on Foreign Affairs. In reply to a request from the Committee, Secretary Hughes on March 2 supplied further information, but in view of the limited time before the adjournment of Congress the Committee did not take action. A resolution to take up the matter, offered by Senator King in the Senate on March 3, failed by a vote of 49 to 24.

PAN-AMERICAN CONFERENCE.—The Fifth Pan-American Conference was scheduled to assemble at Santiago, Chile, on March 25, with delegates

from all American republics except Mexico, Peru, and Bolivia. Among topics on the agenda may be noted the following:

Under topic XVI, Uruguay will propose that all the American countries adopt, as a principle of their foreign relations, that an encroachment upon the rights of any one of them, inflicted by a non-American power, must be considered an encroachment upon the rights of all, and should call for a uniform policy from all. It was under this doctrine, called in South America the Brum Doctrine, that Uruguay broke its relations with Germany upon the entrance of the United States into the World War.

The reduction of armaments proposed by Chile under topic XII is expected to be the most important and practical of the matters to be discussed, the success of which depends, principally, upon an agreement among Argentina, Brazil and Chile, the three leading naval and military powers of South America. The United States already having reduced its armed force to the minimum under the Five Powers Agreement of 1921, the present navy and army of this country will not be affected.

Of the nineteen points of the agenda, the United States proposes ten, seeking to bring about a co-ordinated plan or commercial agreements among the twenty-one American Republics. Prohibition is brought up by Venezuela, under the form of a progressive diminution of the production of alcoholic beverages.

The United States will be represented at the conference by a delegation headed by Henry P. Fletcher, Ambassador to Belgium, and including Senator Kellogg of Minnesota, Senator Pomerene of Ohio, former Senator Saulsbury of Delaware, George E. Vincent, President of the Rockefeller Foundation, New York; Frank C. Partridge of Vermont, William Eric Fowler of Washington and Dr. L. S. Rowe, Director of the Pan-American Union.

BRAZIL REJECTS NAVAL LIMITATIONS.—Brazil goes to the Pan-American Conference at Santiago opposed to accepting any plan for reducing or limiting armament expenditures which would deprive her of an adequate protection for her coast and coastwise communications.

Afronio de Mello Franco, head of the Brazilian delegation said it was correct to infer that this attitude implied Brazil's unwillingness to accept the original suggestion of Chile that armament expenditures be limited or reduced in equal proportions, and also that Brazil was not willing to accept limitation of armaments to the status quo in South America.

"I believe that Argentina, Brazil and Chile—the three nations most interested—have the same pacific ideals," he asserted, "and are thoroughly in sympathy with the idea of lifting the burden of armament expenditures. But in approaching this question it is necessary for Brazil to take into consideration her national necessities, which primarily are those imposed by geography.

"These consist above all in protecting our coastwise communications, which are absolutely essential to preserving the unity of the republic. It must be remembered that Brazil possesses enormous stretches of territory and, unlike Argentina and less so than Chile, Brazil has not a railroad system which connects all parts of the country, especially in the north. Sea communications are the only means of reaching these isolated sections.

"For example, in the case of a seditious movement occurring in the State of Bahia some time ago, the only way the Government could send forces to put it down was by sea. The lack of rail communication consequently makes sea communication and its protection vital necessities of the national unity and welfare.

"War in South America is inconceivable, and it is the furthest from the thought of the Brazilian people and Government to seek hegemony in South America through naval power. All that we want is the adequate protection I have mentioned. As long as we are assured of this we are willing that Argentina and Chile should have such navies as they please; but reduction or limitation in equal proportion, or even preservation of the status quo, will not assure this because of the fact that Brazil's navy at present stands third in South America and we would be limited by these propositions in providing for our necessities.

"We have the fullest confidence that the discussion at Santiago, to which we are going in the friendliest spirit, will lead to an amicable understanding."

REVIEW OF BOOKS

LA GUERRA MARITTIMA (with the subtitle, "A Study of the Employment of Means in the World War") Vol. I. By Romeo Bernotti, Capitano di Vascello. Florence, Italy, 1923.

A Review by Professor Allan Westcott, U. S. Naval Academy

The author of this study is Director of the Italian Naval War College, and a writer of recognized international authority. A translation of his earlier work on *Fundamentals of Naval Tactics* was published by the Naval Institute, and in 1920 appeared his valuable historical narrative entitled *Il Potere Marittimo nella Grande Guerra.*

As compared with the volume just mentioned, the present work is entirely different in treatment. Nothing quite like it, so far as the reviewer is aware, has been attempted in English. Indeed it is no dispraise of the book to say that for American and English readers it is even more valuable as an example of logical and systematic method applied to the study of naval problems, than it is for the actual conclusions reached. We may have reached similar or possibly better conclusions, but we have probably reached them in more haphazard and less convincing ways.

To quote the preface, the purpose is to seek the new principles and lessons to be derived from the war. The method consists in "an appreciation of the extent of evolution from pre-war ideas to those adopted in the course of the war, and then a projection of these lines of evolution into the future." The book is not a story of what happened, but an attempt at generalization or synthetic study of principles and methods employed. The first part of the book deals with the situation before the war—geographic and economic conditions affecting the future belligerents, naval policies, events leading up to the war, naval doctrines in general acceptance, the make-up and disposition of naval forces. The second part contains three chapters covering less familiar ground—(1) naval plans and their application or modification in the actual conduct of the war; (2) the strategic heritage from the war, and (3) new strategic possibilities. A second volume will deal with tactics, combined operations, and new lines of national policy relating to maritime affairs.

Some of the conclusions in the chapter on *The Strategic Heritage from the War* may be briefly indicated. (1) Since, on account of submarines and aircraft, "control" or "domination" of the sea has become more difficult than in the past, it is well to draw a distinction between "free use of the sea" and "control of the sea," the latter signifying not merely free use but guaranteed ability to pursue one's own objectives and effectually

to prevent the enemy from doing the same. Neither side had either free use or control in the eastern Atlantic or Mediterranean at the height of the submarine campaign in 1917. (2) In view of the increased employment of "insidious" methods of warfare, the evolution of naval strategy has been away from the concept of close blockade to that of mutual "vigilance," with increased strategic possibilities to the weaker fleet. On the other hand, better means of communication have reduced the difficulties of insuring contact and determining enemy objectives, and have placed increased weight on efficient information service. Essential means of insuring contact include radio-equipped submarines in the vicinity of enemy bases and along his presumable line of operations, aircraft of all types and aircraft-carriers, light cruisers, and battle cruisers able not only to establish but maintain contact with the enemy main force. (3) The question of bases is discussed, with emphasis on the necessity of a well prepared *system* of advanced and permanent bases, located in the best possible adjustment of the conflicting principles of protection against attack and convenience for one's own offensive operations. Incidentally, as an instance of the value of access to German sources,[1] it is noted that the *Göben,* though credited with better speed than any of the British battle cruisers in the Mediterranean, was in reality prevented by the bad condition of her boiler tubes from making better than eighteen knots (except for a brief spurt on August 4). Hence the obvious rule that it is never wise to assume the impossibility of pursuit *a priori,* on the basis of known data, without an actual trial.

The final chapter on *New Strategic Possibilities* deals primarily with submarines, gas, and especially aircraft. It is pointed out that aerial development has further increased the possibilities of offensive operations on the part of the weaker belligerent, and that the country with sea frontiers, instead of being protected, is the more exposed to surprise aerial attack. As regards the question whether aircraft have rendered battleships obsolete, it is held axiomatic that a new means of warfare, however dangerous it may render the employment of an old one, cannot condemn it entirely, provided it has a function of essentially different character. Torpedoes, mines, and submarines did not condemn the battleship. Aircraft and submarines, however effective for scouting and combat, cannot in their present or even prospective development accomplish the transportation overseas of great masses of men, munitions and supplies. So far as we can envisage the future, surface navigation will remain an important and necessary factor in peace and war.

Nevertheless, in view of the increased possibilities of aerial offensive, the nation that neglects this arm runs the risk of initial loss of control of the air and consequent quick defeat. Aerial defensive strategy calls for an energetic counter-offensive against enemy forces and bases, and a strength at least equal to that of the enemy. "From a maritime point of

[1] From an article by Admiral Souchon in a German collection entitled "Undefeated on the Sea."

view, control of the air is an integral element in control of the sea; it should be such as to prevent free use of the sea and adequate security of naval bases against aerial attack."

As regards the general form of future naval warfare, "initial condition of preparation is likely to have a decidedly greater significance than in the past; it can be shown that a brief period may decide the fate of a nation that in peace has not sufficiently appreciated new military possibilities. . . . It is essential that each nation, on the basis of its geographic and economic situation, determine the minimum preparation required in order to prevent the rapid annulment of its powers of resistance. This minimum is absolutely necessary, and must not be sacrificed because of financial exigencies, or because of the nation's pacific policies in international affairs, for without such minimum the nation cannot command respect."

The brief extracts from Captain Bernotti's book which are here given make no pretense of adequate summary, but are intended rather to illustrate the general character of the conclusions reached. Often, it will be seen, they have special reference to Italy and are less applicable to nations more distant from possible enemies. But they have all the value that must attach to sober conclusions reached on the basis of a thorough survey of the data at hand.

U. S. NAVAL INSTITUTE

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Index The index of the PROCEEDINGS for Volume 48 (1922) is now ready for issue. A copy will be mailed to members and subscribers on request.

JUN 16 1923

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